MICHIGAN DISPOSAL WASTE TREATMENT PLANT

Belleville, Michigan

MID 000 724 831

Hazardous Waste Management Facility
Operating License

September 30, 1999

DEQ

State of Michigan
Department of Environmental Quality
HAZARDOUS WASTE MANAGEMENT FACILITY OPERATING LICENSE

NAME OF LICENSEE: Michigan Disposal Waste Treatment Plant

NAME OF OWNER: EQ - The Environmental Quality Company

NAME OF OPERATOR: EQ - The Environmental Quality Company

NAME OF TITLEHOLDER OF LAND: Wayne Disposal, Incorporated

FACILITY NAME: Michigan Disposal Waste Treatment Plant

FACILITY LOCATION: 49350 North I-94 Service Drive
Belleville, Michigan 48111

EPA IDENTIFICATION NUMBER: MID 000 724 831 EFFECTIVE DATE: September 30, 1999

REAPPLICATION DATE: March 30, 2004 EXPIRATION DATE: September 30, 2004

AUTHORIZED ACTIVITIES

Pursuant to Part 111 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), being §§324.11101 to 324.11152 of the Michigan Compiled Laws, and the hazardous waste management administrative rules (hereafter called the "rules") promulgated thereunder, being R 299.9101 et. seq. of the Michigan Administrative Code, by the Michigan Department of Environmental Quality (MDEQ), an operating license (hereafter called the "license") is issued to Michigan Disposal Waste Treatment Plant (MDWTP) (hereafter called the "licensee") to operate a hazardous waste storage and treatment facility located in Belleville, Michigan, at latitude 42°13'30"N and longitude 083°31'00"W. The licensee is authorized to conduct the following hazardous waste management activities:

☒ STORAGE	☒ TREATMENT	☐ DISPOSAL	☐ POST CLOSURE
☒ Container	☒ Container	☐ Landfill	☐ Tank
☒ Tank	☒ Tank	☐ Land Application	☐ Surface Impoundment
☐ Waste Pile	☐ Surface Impoundment	☐ Surface Impoundment	☐ Landfill
☐ Surface Impoundment	☐ Incinerator		☐ Waste Pile
☐ Drip Pad	☐ Other:		

APPLICABLE REGULATIONS AND LICENSE APPROVAL

The conditions of this license were developed in accordance with the applicable provisions of the rules, effective September 22, 1998. The licensee shall comply with all terms and conditions of this license. This license consists of the 38 pages of conditions attached hereto (including those in any Attachments 1 through 17) and the applicable regulations contained in R 299.9101 through R 299.11008 as specified in the license. For purposes of compliance with this license, applicable rules are those which are in effect on the date of issuance of this license in accordance with R 299.9521(3)(a).

This license is based on the information submitted in the license application submitted on March 15, 1995 and any subsequent amendments (hereafter referred to as "the application"). Pursuant to R 299.9519(11)(c), the license may be revoked if the licensee fails, in the application or during the license issuance process, to disclose fully all relevant facts or, at any time, misrepresents any relevant facts. As specified in R 299.9519(1), the facility shall be constructed, operated, and maintained in accordance with Part 111 of Act 451, the rules, and this license.

This license is effective on the date of issuance and shall remain in effect for five years from the date of issuance, unless revoked pursuant to R 299.9519 or continued in effect as provided by the Michigan Administrative Procedures Act, 1969 PA 306, as amended (Act 306).

Issued this 30th day of September, 1999

by Jim Sygo

Jim Sygo, Chief
Waste Management Division

STATE OF MICHIGAN

FILE

JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

"Better Service for a Better Environment"

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

INTERNET: www.deq.state.mi.us

RUSSELL J. HARDING, Director

REPLY TO:

WASTE MANAGEMENT DIVISION
PO BOX 30241
LANSING MI 48909-7741

October 11, 1999

Mr. Hak Cho (DRP-8J)
United States Environmental Protection Agency, Region 5
Waste, Pesticides, and Toxics Division
Waste Management Branch
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Dear Mr. Cho:

SUBJECT: Final Operating License for Michigan Disposal Waste Treatment Plant
Belleville, Michigan; MID 000 724 831

The Michigan Department of Environmental Quality (MDEQ), Waste Management Division (WMD), has issued a hazardous waste facility operating license to Michigan Disposal Waste Treatment Plant in Belleville, Michigan.

Enclosed are copies of the final operating license, the Response to Comments document, and the notice of final decision. Please instruct your staff to file these documents with the application. Please be aware that the United States Environmental Protection Agency (U.S. EPA) Region 5 Office is listed in the notice of final decision as one of the four locations where this information may be reviewed.

If you have any questions or comments regarding the operating license, please contact me.

Sincerely,

Kimberly M. Tyson

Kimberly M. Tyson
Hazardous Waste Program Section
Waste Management Division
517-373-2487

Enclosures

cc: Mr. Greg Rudloff, U.S. EPA
Operating License File

with the corrective measures has been completed and all operational tests run. The Construction Completion Report shall document how the construction is in compliance with the approved design plans and specifications and that the corrective measures are performing satisfactorily based on the operational tests.

5. The Chief of the Waste Management Division will approve or modify and approve the Construction Completion Report, or provide a written Notice of Deficiency on the Construction Completion Report. The licensee shall modify the Construction Completion Report in accordance with the Notice of Deficiency and submit a new Construction Completion Report or revisions to the Construction Completion Report to the Chief of the Waste Management Division for approval within 30 days after receipt of the Notice of Deficiency. Upon approval by the Chief of the Waste Management Division, the Construction Completion Report becomes an enforceable condition of this license.

6. The licensee shall implement full-scale corrective measures within 30 days of receipt of written approval of the Construction Completion Report by the Chief of the Waste Management Division.

7. The licensee shall submit a written CMI Final Report to the Chief of the Waste Management Division for review and approval within 60 days after the corrective measures have been completed and the corrective measures criteria have been met. The CMI Final Report shall document compliance with the corrective measures completion criteria and provide justification that the corrective measures may cease.

8. The Chief of the Waste Management Division will approve or modify and approve the CMI Final Report, or provide a written Notice of Deficiency on the CMI Final Report. The licensee shall modify the CMI Final Report in accordance with the Notice of Deficiency and submit a new CMI Final Report or revisions to the CMI Final Report to the Chief of the Waste Management Division for approval within 30 days after receipt of the Notice of Deficiency.

9. The licensee shall submit bi-monthly written CMI progress reports on the construction phase and quarterly written CMI progress reports on the operation and maintenance activities phase to the Chief of the Waste Management Division.

10. The licensee shall comply with the time frames specified in Condition VI.H.1.-VI.H.9. of this license unless otherwise approved in writing by the Chief of the Waste Management Division.

{Section 11115a of Act 451 and R 299.9629}

I. COST ESTIMATE FOR CORRECTIVE ACTION

1. The licensee shall prepare a detailed written cost estimate for CMI at the facility. {R 299.9712}

2. The licensee shall submit the detailed written cost estimate for CMI to the Chief of the Waste Management Division for review and approval in conjunction with the CMI Work Plan required in Condition VI.H.1. of this license. {R 299.9712}

3. The Chief of the Waste Management Division will approve the cost estimate for CMI or provide a written Notice of Deficiency on the cost estimate for CMI. The licensee shall modify the cost estimate for CMI in accordance with the Notice of Deficiency and submit a new cost estimate for CMI to the Chief of the Waste Management Division for approval within 30 days of receipt of the Notice of Deficiency. Upon approval by the Chief of the Waste Management Division, the cost estimate for CMI becomes an enforceable condition of this license. {R 299.9712}

4. Until the Director notifies the licensee in writing that the licensee is no longer required by R 299.9713 to maintain financial assurance for CMI at the facility, the licensee shall adjust th CMI cost estimate for inflation within 60 days prior to the anniversary of the date of the establishment of the financial mechanism[s] used to demonstrate financial assurance for CMI. If the financial mechanism used is the financial test or corporate guarantee, the licensee shall adjust the CMI cost estimate for inflation within 30 days after the close of the firm's fiscal year and before submission of updated financial information to the Chief of the Waste Management Division. Whenever the current cost estimate increases to an amount greater than the current value of the associated financial mechanism for reasons other than inflation, the licensee shall, within 60 days, increase the value of the mechanism to an amount at least equal to the adjusted cost estimate. Evidence of such increases shall be submitted to the Chief of the Waste Management Division during the 60-day period. {R 299.9712}

5. The licensee shall recalculate the CMI cost estimate within 30 days after the Chief of the Waste Management Division has approved a modification of the CMI Work Plan. Until the Director notifies the licensee in writing that the licensee is no longer required to maintain financial assurance for CMI, the licensee shall revise the CMI cost estimate whenever there is a change in the facility's CMI Work Plan, if the change in the CMI Work Plan increases the cost of CMI. {R 299.9712}

6. The licensee shall keep the latest CMI cost estimate at the facility. {R 299.9629(3)(b)}

J. **FINANCIAL ASSURANCE FOR CORRECTIVE ACTION**

1. The licensee shall establish and continuously maintain corrective action financial assurance in accordance with R 299.9713. The licensee shall submit in conjunction with the CMI Work Plan the CMI financial assurance mechanism[s] approved by the Chief of the Waste Management Division in an amount at least equal to the cost estimate required by Condition VI.I.1. of this license. If more than one mechanism is used, or if more than one facility is covered by the mechanism[s], the total amount of financial assurance provided for the facility shall at least equal the amount of the cost estimate required by Condition VI.I.1. of this license. The licensee shall submit all proposed changes in the mechanism[s], other than renewals, extensions, or increases in the amount of assurance, to the Chief of the Waste Management Division and obtain approval prior to implementation. The licensee shall provide the Chief of the Waste Management Division with a signed original of all revisions and renewals within 60 days after such revision or renewal and at least 30 days prior to the anniversary of the establishment of the financial mechanism[s] provided to satisfy the requirements of this condition.

2. The licensee shall establish an approved renewal or replacement CMI financial mechanism[s] at least 30 days prior to the expiration date of the current mechanism[s], and obtain the Chief of the Waste Management Division's approval of such replacements, for all financial mechanisms provided to satisfy the requirements of this condition. Failure to provide such documentation is a violation of this license and shall be cause for the Chief of the Waste Management Division to access all funds provided in any financial mechanism not renewed or replaced in accordance with this condition and to initiate revocation of this license.

3. Whenever the current CMI cost estimate increases to an amount greater than the current amount of the associated financial mechanism(s) for reasons other than inflation, the licensee shall, within 60 days after the increase, either increase the amount of the mechanism(s) to an amount at least equal to the increased CMI cost estimate, or provide an additional financial mechanism approved by the Chief of the Waste Management Division for an amount at least equal to the difference between the current amount of financial assurance and the increased CMI cost estimate. Evidence of such increased financial assurance must be submitted to the

Chief of the Waste Management Division during the 60-day period.

K. SUMMARY OF CORRECTIVE ACTION SUBMITTALS

The licensee shall submit required corrective action documents in accordance with the schedule below.

CORRECTIVE ACTION DOCUMENT	SUBMITTAL DEADLINE
Written notification of a new release of a contaminant from an existing WMU, a new WMU, or a release of a contaminant from a new WMU	Within 30 days of discovery
RFI Work Plan for a newly identified release of a contaminant from an existing WMU, a new WMU, or a release of a contaminant from a new WMU	Within 60 days after receipt of written notification that corrective action is required
RFI Work Plan for existing WMUs and contaminant releases.	Within 60 days after the final closure of WMU 5 and WMU6.
Revised RFI Work Plan for existing WMUs and contaminant releases	Within 30 days after receipt of RFI Work Plan Notice of Deficiency
RFI progress reports	Within 60 days of initiation of the RFI and every 60 days thereafter
RFI Final Report for existing WMUs and contaminant releases	Within 60 days after completion of RFI
Revised RFI Final Report for existing WMUs and contaminant releases	Within 30 days after receipt of RFI Final Report Notice of Deficiency

CORRECTIVE ACTION DOCUMENT	SUBMITTAL DEADLINE
CMS Work Plan for existing WMUs and contaminant releases	Within 90 days after receipt of notification that CMS is required
Revised CMS Work Plan for existing WMUs and contaminant releases	Within 30 days after receipt of CMS Work Plan Notice of Deficiency
CMS progress reports	Within 60 days of initiation of the CMS and every 60 days thereafter
CMS Final Report for existing WMUs and contaminant releases	Within 60 days of completion of the CMS
Revised CMS Final Report for existing WMUs and contaminant releases	Within 30 days after receipt of CMS Final Report Notice of Deficiency
CMI Work Plan for existing WMUs and contaminant releases	Within 90 days after approval of the CMS Final Report
Revised CMI Work Plan for existing WMUs and contaminant releases	Within 30 days after receipt of CMI Work Plan Notice of Deficiency
CMI progress reports on construction phase of CMI	Within 60 days of initiation of construction and every 60 days thereafter
CMI progress reports on operation and maintenance activities	Within 60 days of initiation of operation and maintenance activities and every 90 days thereafter
Construction Completion Report	Within 60 days after completion of construction and operational tests
Revised Construction Completion Report	Within 30 days after receipt of Construction Completion Report Notice of Deficiency
CMI Final Report for existing WMUs and contaminant releases	Within 60 days after completion of CMI
Revised CMI Final Report for existing WMUs and contaminant releases	Within 30 days after receipt of CMI Final Report Notice of Deficiency

L. CORRECTIVE ACTION DOCUMENTS RETENTION

The licensee shall maintain all corrective action documents required by this license at the facility. The documents shall be maintained for the operating life of the facility and until the facility is released from financial assurance requirements for corrective action by the Director.

{Section 11115a of Act 451 and R 299.9629}

MICHIGAN DISPOSAL WASTE TREATMENT PLANT
MID 000 724 831

HAZARDOUS WASTE MANAGEMENT FACILITY OPERATING LICENSE

TABLE OF CONTENTS

PART I

STANDARD CONDITIONS

A. TERMINOLOGY

Throughout this license, "Act 451" means Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and "rules" means the hazardous waste management administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Act 451, as in effect on the date of issuance of this license. The term "Waste Management Division" means the division within the Michigan Department of Environmental Quality (MDEQ) responsible for administering Part 111 of Act 451 and the rules. Throughout this license, "Director" means the Director of the MDEQ or the Director's duly authorized designee such as the Chief of the Waste Management Division of the MDEQ.

B. EFFECT OF LICENSE

Except as otherwise provided by law, any treatment, storage, or disposal of hazardous waste not specifically authorized in this license is prohibited. Issuance of this license does not convey property rights of any sort or any exclusive privilege {R 299.9516(7) and 40 Code of Federal Regulations (CFR) §270.30(g), which is adopted by reference (ABR) in R 299.11003}; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of federal, state, or local law or regulations {R 299.9516(8)}; nor does it obviate the necessity of obtaining such permits or approvals from other units of government as may be required by law. Compliance with the terms of this license does not constitute a warranty or representation of any kind by the MDEQ, nor does the MDEQ intend that compliance with this license constitutes a defense to any order issued or any action brought under Act 451 and any other applicable state statute and Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) {42 USC 9606(a)}, the Resource Conservation and Recovery Act of 1976, as amended (RCRA), and its rules, and any other applicable federal statute. The licensee, however, does not represent that it will not argue that compliance with the terms of this license may be a defense to such future regulatory actions. Each attachment to this license is a part of, and is incorporated into, this license and is deemed an enforceable part of the license.

C. LICENSE ACTIONS

This license may be modified or revoked in accordance with R 299.9519. The filing of a request for a license modification or revocation, or the notification of planned changes or anticipated noncompliance on the part of the licensee does not stay the applicability or enforceability of any license condition. {R 299.9519, R 299.9521(1)(a) and 40 CFR §270.30(f), which is ABR in R 299.11003}

D. SEVERABILITY

The provisions of this license are severable, and if any provision of this license, or the application of any provision of this license to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this license shall not be affected thereby.

E. RESPONSIBILITIES

1. The licensee shall comply with Part 111 of Act 451, the rules, and all conditions of this license, except to the extent authorized by the MDEQ pursuant to the terms of an emergency operating license. {R 299.9521(1)(a) and (3)(a) and (b), and 40 CFR §270.30(a), which is ABR in R 299.11003}

   (a) Duty to Reapply. If the licensee wishes to continue an activity regulated by this license after the expiration date of this license, the licensee shall submit a complete application for a new license to the Chief of the Waste Management Division at least 180 days before this license expires, September 30, 2004, unless an extension is granted pursuant to R 299.9510(5). {R 299.9521(1)(a) and (c) and (3)(a), and 40 CFR §270.30(b), which is ABR in R 299.11003}

   (b) License Expiration. To the extent consistent with Section 91(2) of Act 306, this license and all conditions herein will remain in effect beyond the license expiration date if the licensee has submitted a timely, complete application and the Chief of the Waste Management Division has not issued a new license. {Section 91 of Act 306, R 299.9521(1)(c) and (3)(a)

   (c) Inspection and Entry. The licensee shall allow the Chief of the Waste Management Division, or any authorized representative, including, but not limited to, a contractor, upon the presentation of credentials and other documents as may be required by law, to sample or monitor, at reasonable times, any substances or parameters at any location for the purpose of determining:

      (i) Whether the management of hazardous waste may present an imminent and substantial hazard to the health of persons or to the natural resources, or is endangering or causing danger to public health or the environment;

      (ii) Whether cause exists for an enforcement action, license revocation, license modification, denial of a license renewal application, or to determine compliance with this license.

   If samples are taken for analysis, duplicate samples and a copy of the analytical results shall be furnished to the licensee upon request.

   {Sections 11146(1) and (2) and 11148(1) of Act 451, R 299.9521(1)(a), and 40 CFR §270.30(i), which is ABR in R 299.11003}

   (d) Specific Monitoring Requirements. The Chief of the Waste Management Division reserves authority to require specific monitoring for hazardous wastes or hazardous waste constituents, in addition to those requirements detailed in this license, if the Chief of the Waste Management Division finds that additional monitoring is needed to demonstrate compliance with this license, Part 111 of Act 451, and the rules. {R 299.9611(5)}

   (e) Notice of Facility Modifications. The licensee shall give notice to the Chief of the Waste Management Division as soon as possible prior to any planned physical alterations or additions to the licensed facility. {R 299.9519(1)}

   (f) License Amendments for Facility Modifications. The licensee shall request and obtain a license amendment prior to undertaking any modifications to the facility. Except as otherwise authorized by Part 111 of Act 451 and the rules, the licensee shall obtain a construction permit prior to expanding, enlarging, or altering the facility. {R 299.9501(1), R 299.9519, and R 299.9521(1)(b)(i)}

(g) Submission of Statements and Certifications for Construction and Capability. The licensee shall submit to the Chief of the Waste Management Division, by certified mail or hand delivery, a letter signed by the licensee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the license and approved plans and the certifications of construction and capability required pursuant to Section 11123(3) of Act 451. The licensee shall not treat, store, or dispose of hazardous waste in the modified portion of the facility until one of the following conditions is met:

(i) The Chief of the Waste Management Division, or the authorized representative, has inspected the modified facility and finds it is in compliance with the conditions of the license;

(ii) If within 15 days of the date of submission of the letter in Condition I.E.1.(g) of this license, the licensee has not received notice from the Chief of the Waste Management Division of his or her intent to inspect, prior inspection is waived, and the licensee may commence treatment, storage, or disposal of hazardous waste.

{R 299.9521(1)(b)(ii)}

(h) Anticipated Noncompliance. The licensee shall give advance notice to the Chief of the Waste Management Division as soon as the licensee becomes aware of any planned changes or activity in the licensed facility which may result in noncompliance with license requirements. {R 299.9521(1)(a) and 40 CFR §270.30(l)(2), which is ABR in R 299.11003}

(i) Transfer of License. The licensee shall obtain the approval of the Chief of the Waste Management Division, by a modification to the license, prior to transferring ownership or operation of the facility to another person. In addition, the licensee shall comply with the requirements of R 299.9605 when transferring the ownership of the facility. The new owner/operator shall not accept hazardous waste at the facility unless the license modification has been issued by the Chief of the Waste Management Division. {R 299.9522}

(j) Other Information. Whenever the licensee becomes aware that he/she failed to submit any relevant facts in the license application, or submitted incorrect information in a license application or in any report to the Chief of the Waste Management Division, the licensee shall promptly submit such facts or information. {R 299.9521(1)(a) and 40 CFR §270.30(l)(11), which is ABR in R 299.11003}

2. The licensee shall comply with the requirements of 40 CFR §270.30(c)-(e) and (h)-(j), including those requirements pertaining to:

(a) Need to halt or reduce activity not a defense,

(b) Duty to mitigate,

(c) Proper operation and maintenance,

(d) Duty to provide information,

(e) Inspection and entry,

(f) Monitoring and records.

{R 299.9521(1)(a) and 40 CFR §270.30(c)-(e) and (h)-(j), which are ABR in R 299.11003}

3. Any license noncompliance, except to the extent authorized by the MDEQ pursuant to the terms of an emergency operating license, constitutes a violation of Part 111 of Act 451 and is grounds for enforcement action, license revocation, license modification, or denial of a license renewal application. {R 299.9521(1)(a) and 40 CFR §270.30(a), which is ABR in R 299.11003}

F. SIGNATORY REQUIREMENT

The licensee shall ensure that all reports required by this license or other information requested by the Chief of the Waste Management Division, or authorized representative, are signed and certified in accordance with R 299.9610(4), by a responsible corporate officer, as defined in 40 CFR §270.11, which is ABR in R 299.11003. {R 299.9521(1)(a) and 40 CFR §270.30(k), which is ABR in R 299.11003}

G. SUBMITTAL DUE DATES AND DEADLINES

When the due date or deadline for submission of applications, reports, records, and monitoring results required under this license falls on a weekend or legal state holiday, the due date or deadline shall be extended to the next regular business day, and reports, records, and monitoring results shall be considered submitted on a timely basis if submitted by the next regular business day. This extension does not apply to the submittal due date or deadline for financial mechanisms, and associated renewals, replacements, and continuations of financial mechanisms required under this license.

The licensee may request extension of the due dates or deadlines for submittals required under this license. The licensee shall submit such requests at least five business days prior to the existing due date or deadl for review and approval by the Chief of the Waste Management Division. Written extension requests sha include justification for each extension. {R 299.9521(3)(a)}

PART II

GENERAL OPERATING CONDITIONS

A. DESIGN AND OPERATION OF FACILITY

The licensee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any sudden or non-sudden release of hazardous waste or hazardous waste constituents to the environment, including air, soil, or waters of the State which could threaten human health or welfare or the environment. {R 299.9602, R 299.9606, R 299.9607, and 40 CFR §§264.31 and 264.51, which are ABR in R 299.11003}

B. REQUIRED NOTICE

1. The licensee shall notify the Chief of the Waste Management Division in writing at least four weeks in advance of the date the licensee expects to receive hazardous waste from a foreign source. Notice of subsequent shipments of the same waste from the same foreign source is not required. When receiving such hazardous waste, the licensee shall comply with applicable laws, including, but not limited to, any treaties or other agreements entered into between the country in which the foreign source is located and the United States. {R 299.9605(1) and 40 CFR §264.12(a), which is ABR in R 299.11003}

2. When the licensee is to receive hazardous waste from an off-site source (except where the licensee is also the generator), he must inform the generator in writing that he has the appropriate license for, and will accept, the waste the generator is shipping. The licensee must keep a copy of this written notice as part of the operating record (see Condition II.L.1. of this license). {R 299.9605(1) and 40 CFR §264.12(b), which is ABR in R 299.11003}

C. GENERAL WASTE ANALYSIS

1. The licensee shall ensure that any waste stored, treated, or disposed at the facility has been properly characterized pursuant to R 299.9302, and comply with the procedures described in the attached waste analysis plan, Attachment 1 of this license, and the following conditions which modify the referenced sections in Attachment 1:

   (a) All combustible containers, supports, and packaging not integral to waste or reagent packaging and added to a batch treatment process shall be recorded on the batch ticket. The batch ticket is a log used to document the description and quantity of waste and reagents in a batch treatment process. The licensee shall add to each mock compatibility test tank at least one percent combustible materials to simulate the containers, supports and packagings that are integral to waste and reagent packagings. The licensee shall record and maintain the results of the laboratory simulations in accordance with Condition II.L.1 of this license. [Section 3.2.3]

   (b) Wastes that are bulked and mixed, excluding empty containers, site generated debris or closed and intact containers of non-hazardous waste, shall be subjected to the same compatibility and waste code evaluations as applied to wastes that are mixed in the treatment tanks. Waste treatment shall only be conducted in accordance with the procedures specific in Conditions III.C. and IV.C. of this license. [Section 3.3.2]

   (c) The sampling techniques described herein are performed in accordance with the techniques outlined in the US EPA's SW-846. [Section 6.1]

(d) All sampling equipment used in the collection of waste samples shall either be disposable (i.e., scoops or drum thieves) or sufficiently cleaned to remove observable contamination prior to sampling prior to reuse. [Section 6.4]

(e) The compatibility test as described in Appendix B of the waste analysis plan shall be modified pursuant to Condition VII.B. of this license. Upon receipt of written approval, the compatibility test workplan shall become a part of the waste analysis plan, Attachment 1 of this license, and an enforceable part of this license. [Appendix B]

(f) References to the Michigan Department of Natural Resources shall be changed to the Michigan Department of Environmental Quality. [Sections 1.0, 2.1, 3.2.4, Table 3, Appendix A]

(g) MDWTP will insure that debris requiring treatment to the waste-specific treatment standards is treated to those standards or technology standard is met. [Section 3.3.5]

(h) Wastes to be transhipped off-site to other permitted TSDFs will be received under a valid MDWTP approval and management will comply with MDWTP's WAP. [Section 6.3.3]

(i) MDWTP may store or treat deactivated reactive waste that does not exhibit the characteristic of reactivity as defined in R 299.9212. The "D003" waste code shall be denoted in the WAP as "(D003) Deactivated Waste". [Appendix A] This designation is also applicable to the list of acceptable waste codes, Attachment 8, of this license.

(j) The "001D" and "003D" waste codes must be deleted. These waste are no longer regulated as hazardous waste under the Part 111 rules. [Appendix A]

(k) The "Aroclors 1016, 1221, 1232, 1242, 1254, 1260" waste codes must be deleted. MDWTP is not authorized under this license to manage PCB waste. [Appendix A]

2. The licensee may submit to the Chief of the Waste Management Division a revised waste analysis plan that incorporates the modifications specified in Condition II.C.1. (a) – (k) of this license within 30 days of issuance of this license. Any additional modifications proposed by the licensee that constitute less stringent requirements than the approved waste analysis plan (Attachment 1 as modified by Condition II.C.1.(a) – (k)), shall be subject to the public participation procedures specified in R 299.9511.

{R 299.9521(3)(b), R 299.9605(1), and 40 CFR §264.13, which is ABR in R 299.11003}

D. QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

The licensee shall ensure that all samples collected for the purposes of waste characterization and environmental monitoring are collected, transported, analyzed, stored, and disposed of by trained and qualified individuals in accordance with their Quality Assurance/Quality Control (QA/QC) Plan. The QA/QC Plan shall, at a minimum, include the written procedures outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. Environmental Protection Agency (U.S. EPA) Publication SW-846, Third Edition, Chapter 1, and its Updates I (July 1992), II (September 1994), IIA (August 1993), and IIB (January 1995), and any facility or contractor's written standard operating procedures (SOPs) which are equivalent or more stringent than SW-846, Chapter 1. The licensee shall make the written QA/QC Plan available to the Chief of the Waste Management Division or an authorized representative upon request. {R 299.9521(3)(a) and (b) and R 299.9611(2)}

E. **SECURITY**

The licensee shall comply with the security requirements of R 299.9605(1) and 40 CFR §264.14, which is ABR in R 299.11003.

F. **GENERAL INSPECTION REQUIREMENTS**

1. The licensee shall inspect the hazardous waste management facility, remedy any deterioration or malfunction of equipment or structures, and document inspections and remedies in accordance with the attached inspection schedule, Attachment 2 of this license, and the provisions of 40 CFR §264.15 which is ABR in R 299.11003. {R 299.9605(1)}

2. The licensee shall develop and implement a procedure to ensure compliance with the requirements of R 299.9605(2).

G. **PERSONNEL TRAINING**

The licensee shall conduct personnel training as required by R 299.9605(1) and 40 CFR §264.16, which is ABR in R 299.11003. This training program shall, at a minimum, cover all items in the attached outline, Attachment 3 of this license. The licensee shall maintain training documents and records as required by R 299.9605 and 40 CFR §264.16(d), which is ABR in R 299.11003.

H. **PREPAREDNESS AND PREVENTION**

The licensee shall comply with the preparedness and prevention requirements of R 299.9606, including, but not limited to, required equipment, testing, and maintenance of equipment, access to communications and alarm systems, required aisle space, and arrangements with emergency response teams. {R 299.9606 and 40 CFR Part 264, Subpart C, which is ABR in R 299.11003}

I. **CONTINGENCY PLAN**

The licensee shall comply with the contingency plan requirements of R 299.9607. The contingency plan, Attachment 4 of this license, and the prescribed emergency procedures shall be immediately implemented by the licensee whenever there is a fire, explosion, or other release of hazardous waste or hazardous waste constituents which threatens or could threaten human health or the environment, or if the licensee has knowledge that a spill has reached surface water or groundwater. {R 299.9607 and 40 CFR Part 264, Subpart D, which is ABR in R 299.11003}

J. **DUTY TO MITIGATE**

Upon notification from the Chief of the Waste Management Division or his or her designee that an activity at the facility may present an imminent and substantial endangerment to human health or the environment, the licensee shall immediately comply with an order issued by the Chief of the Waste Management Division pursuant to Section 11148(1) of Act 451 to halt such activity and conduct other activities as required by the Chief of the Waste Management Division to eliminate the said endangerment. The licensee shall not resume the halted activity without the prior written approval from the Chief of the Waste Management Division. {Section 11148 of Act 451 and R 299.9521(3)(b)}

K. **MANIFEST SYSTEM**

1. The licensee shall comply with the manifest requirements of R 299.9304, R 299.9305, and R 299.9608.

2. The licensee shall follow the MDEQ, Waste Management Division, rejected load procedures included in waste analysis plan, Attachment 1 of this license.

L. RECORDKEEPING AND REPORTING

1. Operating Record. The licensee shall maintain a written operating record at the facility, until closure of the facility. {R 299.9609 and 40 CFR §264.73 and Part 264, Appendix I, which are ABR in R 299.11003}

2. Biennial Report. The licensee shall comply with the biennial report requirements of R 299.9610. A single copy of the biennial report shall be submitted to the Chief of the Waste Management Division by March 1 of each even numbered year. {R 299.9521(1)(a) and R 299.9610 and 40 CFR §270.30(l)(9), which is ABR in R 299.11003}

3. Monthly Report. The licensee shall comply with the monthly reporting requirements of R 299.9610(3) for waste shipped to the Wayne Disposal, Inc. facility. The monthly report shall be submitted on a form provided by the Chief of the Waste Management Division, or an equivalent form which has been approved by the Chief of the Waste Management Division.

4. Environmental Monitoring Reports. The licensee shall submit the results of all environmental monitoring required by this license in the form of an Environmental Monitoring Report to the Chief of the Waste Management Division within 60 days after sample collection. In addition, the licensee shall submit air monitoring results to the Wayne County Department of Environment, Air Quality Management Division. {R 299.9521(1)(a) and 40 CFR §270.30(l)(4), which is ABR in R 299.11003}

5 Environmental Monitoring Data Availability. The licensee shall provide environmental monitoring information or data which it generates to any local public official requesting such information or data. Such information or data shall be made available on the same day the licensee forwards this information to the Chief of the Waste Management Division. {R 299.9521(3)(b)}

6. Additional Environmental Sampling and Analysis. If the licensee conducts any additional environmental sampling or analysis beyond that required by this license, the results of such sampling or analysis shall be reported in accordance with Condition II.L.4. of this license. Such increased frequency shall also be indicated in the Environmental Monitoring Report. {R 299.9521(3)(a), R 299.9521(1)(a) and 40 CFR §270.30(l)(4), which is ABR in R 299.11003}

7. Reporting of Noncompliance. The licensee shall immediately report to the Chief of the Waste Management Division any noncompliance with the license that may endanger human health or the environment. The licensee shall fulfill this reporting requirement by doing both of the following:

   (a) The licensee shall immediately contact the Chief of the Waste Management Division at 517-373-2730, if the noncompliance occurs during the period 8:00 a.m. to 5:00 p.m., Monday through Friday, except state holidays, or by calling the Department of Environmental Quality Pollution Emergency Alerting System (PEAS) telephone number 1-800-292-4706 during all other times. This report shall include the following:

      (i) Information concerning the release or discharge of any hazardous waste or hazardous waste constituent which may endanger public drinking water supplies or the environment;

(ii) Information concerning the fire, explosion, or other release or discharge of any hazardous waste or hazardous waste constituent which could threaten human health or the environment or a spill that has reached surface water or groundwater;

(iii) A description of the occurrence and its cause, including all of the information outlined in R 299.9607(2)(a)-(i).

(b) The licensee shall also follow-up the verbal report by providing a written report to the Chief of the Waste Management Division within five days after the time the licensee becomes aware of the circumstances. The written report shall contain all of the information in Condition II.L.7.(a)(i)-(iii) of this license along with a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times); whether the noncompliance has been corrected and, if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance and when those activities occurred or will occur. The licensee need not comply with the five-day written notice requirement if the Chief of the Waste Management Division waives the requirement and the licensee submits a written report containing this information within 15 days after the time the licensee becomes aware of the circumstances.

{R 299.9521(1)(a) and R 299.9607 and 40 CFR §270.30(l)(10), which is ABR in R 299.11003}

7. Other Noncompliance. The licensee shall report all other instances of noncompliance with this license, Part 111 of Act 451, the rules, and any other applicable environmental laws or rules that apply to the licensed facility, at the time monitoring reports required by this license are submitted or within 30 days, whichever is sooner. The reports shall contain the information listed in Condition I.L.7. of this license. {R 299.9521(1)(a) and 40 CFR §270.30(l)(10), which is ABR in R 299.11003}

8. Form Modification. The licensee may make minor modifications to the forms contained in the attachments to this license. The modifications may include changing the format, updating existing references and information, adding necessary information, and changing certification and notification information in accordance with Part 111 of Act 451 and its rules, and RCRA and its regulations. The licensee shall submit the modifications to the Chief of the Waste Management Division prior to implementing the use of the modified form(s). If the Chief of the Waste Management Division does not reject or require revision of the modified form(s) within 14 days after receipt, the licensee shall implement use of the modified form(s) and the form(s) shall be incorporated into this license as a replacement for the existing form(s).

M. CLOSURE

The licensee shall comply with the closure requirements of R 299.9613, including, but not limited to, performance standards, amendment of closure plans, notification of closure, time allowed for closure, disposal or decontamination of equipment, and certification of closure. The licensee shall close the facility in accordance with the closure plan, Attachment 5 of this license, all other applicable requirements of this license, and all other applicable laws. The licensee shall submit a proposed amended copy of the closure plan to the Chief of the Waste Management Division at the same time such a license modification is requested. {R 299.9613 and 40 CFR Part 264, Subpart G, except 40 CFR §§264.112(d)(1), 264.115, and 264.120, which is ABR in R 299.11003}

N. COST ESTIMATE FOR FACILITY CLOSURE

1. At the time of issuance of this license, the closure cost estimate is $939,131.

2. The licensee shall comply with the closure cost estimate requirements of R 299.9702, including,

but not limited to, adjustment of the closure cost estimate and maintenance of the latest cost estimate at the facility. {R 299.9702 and 40 CFR §264.142, which is ABR in R 299.11003}.

O. FINANCIAL ASSURANCE FOR FACILITY CLOSURE

1. The licensee shall provide and continuously maintain closure financial assurance in accordance with R 299.9703 in an amount at least equal to the cost estimate required by Condition II.N. of this license. The licensee shall submit all proposed changes in the mechanism(s), other than renewals, extensions, or increases in the amount of assurance, to the Chief of the Waste Management Division and obtain his approval prior to implementation. The licensee shall provide the Chief of the Waste Management Division with a signed original of all revisions and renewals within 60 days after such revision or renewal, by the applicable deadlines specified in R 299.9704 through R 299.9709, and prior to the anniversary of the establishment of the financial mechanism(s) provided to satisfy the requirements of this condition.

2. Whenever the current closure cost estimate increases to an amount greater than the current amount of the associated financial mechanism, the licensee shall, within 60 days after the increase, either increase the amount of the mechanism to an amount at least equal to the increased closure cost estimate, or provide an additional financial mechanism approved by the Chief of the Waste Management Division for an amount at least equal to the difference between the current amount of financial assurance and the increased closure cost estimate. Evidence of such increased financial assurance must be submitted to the Chief of the Waste Management Division during the 60-day period.

P. LIABILITY REQUIREMENTS

The licensee shall continuously maintain liability coverage for sudden and accidental occurrences, as required by R 299.9710, except as otherwise allowed by that rule. The licensee shall submit to the Chief of the Waste Management Division a signed original pollution liability insurance amendatory endorsement or other financial mechanism approved by the Chief of the Waste Management Division prior to the anniversary date of the establishment of the mechanism(s) used to satisfy the requirements of this condition. In the case of the financial test or corporate guarantee, the licensee shall submit the updated financial information within 90 days after the close of each succeeding fiscal year.

Q. WASTE MINIMIZATION

The licensee shall certify at least annually that the licensee has a program in place to reduce the volume and toxicity of hazardous waste that the licensee generates to the degree determined by the licensee to be economically practicable; and the proposed method of treatment, storage, or disposal is the practicable method currently available to the licensee which minimizes the present and future threat to human health and the environment. The certification shall be recorded, as it becomes available, and maintained in the operating record until closure of the facility. {R 299.9609(1)(a), 40 CFR §264.73(b)(9), which is ABR in R 299.11003, and Section 3005(h) of RCRA, 42 U.S.C. Section 6925(h)}

R. LAND DISPOSAL RESTRICTIONS

The licensee shall comply with all of the requirements of 40 CFR Part 268. {R 299.9627 and 40 CFR Part 268, which is ABR in R 299.11003}

S. AIR EMISSION STANDARDS

1. The licensee shall notify the Chief of the Waste Management Division of any waste management units which become subject to the requirements of 40 CFR Part 264, Subparts AA and BB, within 30 days of the start of the regulated activity. {R 299.9630, R 299.9631, and 40 CFR Part 264, Subparts AA and BB, which are ABR in R 299.11003}

2. The licensee shall comply with the requirements of 40 CFR Part 264, Subpart CC regarding air emission standards for tanks and containers. {R 299.9634 and 40 CFR Part 264 Subpart CC, which is ABR in R 299.11003}

3. The licensee shall operate the facility in a manner that minimizes odors emanating from the facility and that prevents odors which violate Part 55, Air Pollution Control, of Act 451 and the rules promulgated pursuant to that part. A violation of Part 55 and its rules, including the issuance of a Violation Notice by the Wayne County Department of Environment or the MDEQ, is a violation of this condition.

   Upon receipt of a Part 55 Violation Notice from Wayne County Department of Environment or the MDEQ, the licensee shall:

   (a) investigate the operations of the facility which caused the violation,

   (b) take such actions as may be necessary to eliminate the cause of the violation provided such actions do not otherwise violate the terms and conditions of this license,

   (c) determine the changes in operations necessary to prevent a recurrence of the odor violation,

   (d) submit a written report to the Chief of the Waste Management Division which documents the results of the investigation and the changes needed in the operations to avoid a recurrence, and

   (e) complete such additional steps as the Chief of the Waste Management Division determines are necessary to prevent recurrence of the odor.

   Failure to comply with any of these steps is a violation of this license.

{R 299.9521(3)(b) and R 299.9602(1)(b)}.

T. HAZARDOUS WASTE DELIVERY AND ON-SITE WASTE TRANSPORT REQUIREMENTS

1. All deliveries of hazardous waste to the facility shall be made in accordance with the procedures specified in Attachment 6 of this license. {R 299.9521(3)(b)}

2. The licensee shall provide written notification to the transportation companies regularly frequenting the facility that:

   a) Wastes shipped to the facility must be placed into closed containers or covered during transportation. The structural integrity of the waste containers must prevent leakage while in transit.

   b) All trucks transporting hazardous waste to or from the facility shall use Rawsonville Road to enter and exit the facility.

c) Trucks transporting hazardous waste to or from the facility shall neither park nor stand on the North I-94 Service Drive.

{R 299.9521(3)(b)}

3. All vehicles transporting or holding hazardous or decharacterized waste or waste constituents, treated or untreated, while at the facility, shall be covered at all times except when sampling, loading, or unloading. The vehicles in question shall only be uncovered no more than 15 minutes before such activities, and shall be covered no more than 15 minutes after such activities.

4. The licensee shall maintain adequate access for ingress and egress to any portion of the facility to allow unobstructed movement of personnel and equipment in case of an emergency. {R 299.9606 and 40 CFR §264.34, which is ABR in R 299.11003}

U. GENERAL HOUSEKEEPING

1. If any visible contamination remains on the exterior of a vehicle, the licensee shall decontaminate that vehicle to prevent the vehicle from tracking the contamination through the facility or outside the facility. {R 299.9521(3)(b)}

2. The licensee shall remove any spilled or leaked waste at the facility immediately upon detection and manage it in accordance with the requirements of Part 111 of Act 451 and its rules.

V. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The licensee shall maintain at the facility the following documents and amendments required by this license, until closure is completed, certified by an independent registered professional engineer, and the facility is released from financial assurance requirements for closure by the Director:

1. Waste analysis plan, including QA/QC plan.
2. Inspection schedules.
3. Personnel training documents and records.
4. Contingency plan.
5. Closure plan.
6. Cost estimates for facility closure and copies of related financial assurance documents.
7. Operating record.
8. Site security plan.
9. Facility engineering plans and specifications.
10. Recordkeeping procedures.
11. Environmental monitoring plans, including sampling and analysis plans and QA/QC plans.
12. Environmental monitoring data and statistical records.
13. Preventative procedures (personnel protection plan).

{R 299.9521(3)(a)}

PART III
CONTAINER STORAGE AND TREATMENT CONDITIONS

A. COVERAGE OF LICENSE

1. The hazardous waste container storage areas at the facility shown on Drawings entitled Site Plan, Facility Drawing, and S.E. Storage Area are covered by this license. Any expansion or enlargement beyond the facility boundary shown on previously referenced drawings or beyond the 264,300-gallon hazardous waste storage design capacity requires a construction permit from the Chief of the Waste Management Division. {R 299.9521(1)(b)}

2. Drawings entitled Site Plan, Facility Drawing, and S.E. Storage Area are incorporated into this license as part of Attachment 7.

B. WASTE IDENTIFICATION AND QUANTITY

1. The licensee may store no more than a total volume of 264,300 gallons of the hazardous wastes listed in Attachment 8 in containers at the facility, subject to the terms of this license. For the purposes of converting gallons to pounds, the conversion factor shall be 8.34 pounds equal one gallon of water. {R 299.9521(2)(d)}

2. A maximum of 82,500 gallons or 1500, 55-gallon container equivalents may be stored in the North Container Storage Area (see figure 1) subject to the terms of this license. {R 299.9521(3)(b)}

3. A maximum of 33,000 gallons or 600, 55-gallon container equivalents may be stored in the East Container Staging Area (see figure 1) subject to the terms of this license. {R 299.9521(3)(b)}

4. The licensee may temporarily store a maximum of 11,000 gallons or 200, 55-gallon container equivalents of untreated waste or 500 cubic yards of treated waste in the west and east treatment bays (see figure 1), subject to the terms of this license. Containers of untreated waste may be stored in this area for no more than one eight hour shift. {R 299.9521(3)(b)}

5. At no time shall the total number of containers in storage in the North Container Storage Area, the East Container Staging Area, and within the bays of the treatment building exceed a maximum of 82,500 gallons or 1500, 55-gallon container equivalents. {R 299.9521(3)(b)}

6. A maximum of 181,800 gallons or 900 cubic yards of hazardous waste in containers may be stored in the Southeast Container Storage Area (see figure 2) subject to the terms of this license. {R 299.9521(3)(b)}

C. WASTE TREATMENT METHODS

The licensee may treat hazardous debris contaminated with the hazardous waste codes listed in Attachment 8 of this license in macroencapsulation units at the facility, subject to the terms of this license. Placement of hazardous debris directly into a macroencapsulation unit shall occur only inside the treatment building under the confines of the air pollution control equipment. {R 299.9521(2)(d), R 299.9627, and 40 CFR §268.45, which is ABR in R 299.11003}

D. CONDITION OF CONTAINERS

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the licensee shall either transfer the hazardous waste from such container to a container that is in good condition, place the container of concern into an overpack container, or otherwise manage the waste in compliance with the conditions of this license. {R 299.9614(1)(a) and 40 CFR

§264.171, which is ABR in R 299.11003}

E. **COMPATIBILITY OF WASTE WITH CONTAINERS**

The licensee shall assure that the ability of the containers to contain the waste is not impaired. {R 299.9614 and 40 CFR §264.172, which is ABR in R 299.11003}

F. **MANAGEMENT OF CONTAINERS**

1. The licensee shall keep all containers holding hazardous waste closed during storage except when it is necessary to add or remove waste, and shall not open, handle, or store containers in a manner which may rupture the containers or cause them to leak. {R 299.9614 and 40 CFR §264.173, which is ABR in R 299.11003}

2. The licensee shall ensure that each container of hazardous waste in the container storage area is labeled or clearly marked with the words "Hazardous Waste" and the hazardous waste number, and the date it was accepted for storage so that compliance with the one-year storage limit can be assessed. The labels on each container shall be clearly visible for inspection. {R 299.9521(3)(b), R 299.9614, R 299.9627, and 40 CFR §268.50(a)(2)(i), which is ABR in R 299.11003}

3. The licensee shall not stack containers of hazardous waste unless approved by the Chief of the Waste Management Division. {R 299.9521(3)(b)}

4. The licensee shall not store any container of hazardous waste for more than one year in the container storage areas referenced in Condition III.A. of this license prior to treatment of its contents on site or shipment off-site to another appropriately licensed hazardous waste treatment or disposal facility, except as approved by the Chief of the Waste Management Division based on a petition demonstrating that such storage is solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal. {R 299.9521(3)(b), R 299.9627, and 40 CFR Part 268, which is ABR in R 299.11003}

5. The licensee shall not store containers holding liquid hazardous waste in the Southeast Container Storage Area unless Conditions VII.A.1.- VII.A.7. of this license are complied with. {R 299.9614 and 40 CFR §264.175, which is ABR in R 299.11003}

6. The licensee shall store containers of treated hazardous or decharacterized waste that meet land disposal restrictions standards only in the North and Southeast Container Storage Areas in compliance with Conditions VII.A.1. - VII.A.7. of this license until such time as the waste is removed for retreatment or disposal off-site.

   The licensee may store containers of treated hazardous or decharacterized waste that meet land disposal restrictions standards in the North and the Southeast Container Storage Areas only when in compliance with Conditions IV.C.8. and 9 of this license. Storage of treated hazardous or decharacterized waste may also occur in the treatment bays in accordance with Condition III.B.4. of this license. {R 299.9602(1)(b) and R 299.9521(3)(b)}

   Decharacterized waste is a characteristic waste as defined by R 299.9212 whose ignitable, corrosive, reactive, or toxic characteristic has been removed through treatment. Any waste that is in compliance with R 299.9203(5) is not subject to regulation as a hazardous waste.

G. CONTAINMENT

The licensee shall operate and maintain the containment system in accordance with the requirements of R 299.9614 and 40 CFR §264.175, which is ABR in R 299.11003, and the attached plans and specifications in Attachment 7 of this license.

H. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

1. The licensee shall not locate containers holding ignitable or reactive wastes within 15 meters (50 feet) of the facility's property line. {R 299.9614 and 40 CFR §264.176, which is ABR in R 299.11003}

2. The licensee shall take precautions to prevent accidental ignition of ignitable wastes by following the procedures specified in Attachment 9 of this license. {R 299.9605 and 40 CFR §264.17(a), which is ABR in R 299.11003}

3. The licensee shall document compliance with Condition III.H.2. of this license and place this documentation in the operating record (Condition II.L.1. of this license). {R 299.9605 and 40 CFR §264.17(c), which is ABR in R 299.11003}

4. The licensee is prohibited from storing reactive wastes in the hazardous waste container storage areas referenced in Condition III.A. of this license. The licensee may store deactivated reactive waste that does not exhibit the characteristic of reactivity as defined in R 299.9212. {R 299.9521(2)(d) and (3)(b)}]

5. The licensee is prohibited from storing ignitable wastes having a flashpoint less than 90°F. {R 299.9521(2)(d) and (3)(b)}

6. Containers holding ignitable hazardous waste shall be stored only in the North, East, and Southeast Container Storage Areas. Storage of ignitable liquid hazardous waste shall not occur in the Southeast Container Storage Area unless Conditions VII.A.1.- VII.A.7. of this license are complied with.

I. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES OR MATERIALS

1. The licensee is prohibited from placing incompatible wastes or incompatible wastes and materials in the same container. {R 299.9521(2)(d) and (3)(b)}]

2. The licensee shall prevent the placement of hazardous waste in an unwashed container that previously held an incompatible waste or material. {R 299.9614 and 40 CFR §264.177(b), which is ABR in R 299.11003}

3. The licensee shall separate containers of incompatible wastes as required by R 299.9614 and 40 CFR §264.177(c), which is ABR in R 299.11003.

4. The licensee shall document compliance with Conditions III.I.1. and III.I.2. of this license and place this documentation in the operating record (Condition II.L.1. of this license). {R 299.9605 and 40 CFR §264.17(c), which is ABR in R 299.11003}

J. DISPOSITION OF ACCUMULATED LIQUIDS AND SOLIDS

The licensee shall remove liquids and pumpable solids from the containment system within 24 hours of detection. Non-pumpable solids shall be removed every 60 days. For high precipitation conditions, where removal cannot be completed within 24 hours, removal of the spilled or leaked waste and accumulated precipitation must begin within 24 hours of detection and continue until that removal is complete. Removed spilled and leaked waste and accumulated precipitation shall be managed in accordance with the requirements of Part 111 of Act 451 and the rules, as specified in Attachment 7 of this license. {R 299.9521(3)(b), R 299.9614(1)(a) and 40 CFR §264.175(b)(5), which is ABR in R 299.11003}

K. COMPLIANCE WITH AIR EMISSION AND WASTE MANAGEMENT REQUIREMENTS FOR STORAGE IN CONTAINERS

The licensee shall operate the facility in a manner that will prevent air emissions in violation of Part 55 of Act 451. {R 299.9602(1)(b)}

PART IV

TANK SYSTEM STORAGE AND TREATMENT CONDITIONS

A. COVERAGE OF LICENSE

1. The hazardous waste tank system storage and treatment areas at the facility shown on the Facility Drawing are covered by this license. Any expansion or enlargement beyond the facility boundary shown on the Facility Drawing or beyond the 649,880-gallon tank system storage design capacity or beyond the 576,000-gallon per day treatment design capacity requires a construction permit from the Chief of the Waste Management Division. {R 299.9521(1)(b)}

2. The Facility Drawing is incorporated into this license as Attachment 10.

B. WASTE IDENTIFICATION AND QUANTITY

1. The licensee may store no more than a total volume of 649,880 gallons of the hazardous wastes listed in Attachment 8 in the tank systems identified as Tanks #1, #2, #3, #7A, #7B, #8A, #8B, #9A, #9B, #10A, #10B, #11, #12, #16, #17, #18, #19, #25, and #27 in Attachment 10, subject to the terms of this license. For the purposes of converting gallons to pounds, the conversion factor shall be 8.34 pounds equal 1 gallon of water. {R 299.9521(2)(d) and (3)(a) and (b)}

2. The licensee may store a maximum of 60,000 gallons of dry hazardous waste dust in the three hazardous waste lime storage silos designated Tank #1, Tank #2, and Tank #3. {R 299.9521(2)(d) and (3)(a) and (b)}

3. The licensee may store a maximum of 389,880 gallons of hazardous wastes in the eight waste treatment tanks designated Tank #7A, Tank #7B, Tank #8A, Tank #8B, Tank #9A, Tank #9B, Tank #10A, and Tank #10B. {R 299.9521(2)(d) and (3)(a) and (b)}

4. The licensee may store a maximum of 80,000 gallons of hazardous liquid and sludge wastes in the two sludge receiving tanks designated Tank #11 and Tank #12. {R 299.9521(2)(d) and (3)(a) and (b)}

5. The licensee may store a maximum of 80,000 gallons of hazardous wastes awaiting treatment in the four waste/reagent storage tanks designated Tank #16, Tank #17, Tank #18, and Tank #19. {R 299.9521(2)(d) and (3)(a) and (b)}

6. The licensee may store a maximum of 40,000 gallons of hazardous waste or waste regent in the waste/reagent storage tanks designated Tank #25 and Tank #27. {R 299.9521(2)(d) and (3)(a) and (b)}

C. WASTE TREATMENT CAPACITY AND METHODS

1. The licensee may treat no more than a total volume of 576,000 gallons per day of the hazardous wastes listed in Attachment 8 in the tank systems identified as Tanks #7A, #7B, #8A, #8B, #9A, #9B, #10A, #10B, #14, and #15 in Attachment 10, subject to the terms of this license. {R 299.9521(2)(d) and (3)(a) and (b)}

2. The licensee shall treat hazardous wastes listed in Attachment 8 of this license through chemical stabilization. For wastes that require more than one type of treatment, the licensee shall use neutralization, deactivation, chemical oxidation, and/or chemical reduction treatment technologies. Waste treatment shall be conducted in accordance with the methods and procedures specified in Attachment 11 of this license, subject to the terms of this license. {R 299.9633}

3. The licensee may treat hazardous debris contaminated with waste codes listed in Attachment 8 of this license by using the microencapsulation and macroencapsulation immobilization technologies specified in 40 CFR §268.45 and the procedures specified in Attachment 11 of this license, subject to the terms of this license. {R 299.9521(2)(d), R 299.9627 and 40 CFR Part 268, which is ABR in R 299.11003}

4. The licensee may operate the treatment system 24 hours per day, seven days per week. {R 299.9521(3)(b)}

5. The licensee shall operate the air pollution control equipment when waste is stored or treated and maintain negative static pressure in the waste treatment building (pugmill mixer rooms, waste treatment /storage tanks) at all times that waste is stored in the treatment building, excluding air pollution control device malfunctions and routine maintenance as allowed under Part 55 of Act 451and its rules. Waste treatment shall cease during air pollution control device malfunctions and routine maintenance. The licensee shall not have more than one overhead door open at a time on the east side and the west side of the waste treatment process building. {R 299.9602(1)(b) and R 299.9521(3)(b)}

6. The licensee shall cover hazardous and non-hazardous treated waste loads in the treatment building prior to the load being transported from the treatment building. {R 299.9521(3)(b)}

7. The licensee shall not mix waste during treatment in such a manner that the fire suppression system is damaged or made ineffective. {R 299.9521(3)(b)}

8. Treatment of hazardous waste shall be completed within the confines of the treatment building. Except as specified in this condition, emissions from the treatment of hazardous waste must be controlled with a permitted air pollution control system. { R 299.9602(1)(b) and R 299.9521(3)(b

   Treated hazardous and decharacterized waste may be directly transferred from the treatment building in compliance with Condition IV.C.9. and stored in the North and Southeast Container Storage Area constructed in compliance with Conditions VII.A.1. – VII.A.7. of this license. {R 299.9602(1)(b) and R 299.9521(3)(b)}

9. The licensee shall develop standard operational procedures to evaluate and minimize odors emanating from loaded containers of treated hazardous or decharacterized waste prior to removal from the treatment building. The odor evaluation and minimization standard operational procedures shall be submitted to the Southeast Michigan District Supervisor for approval within 60 days of issuance of this license. The licensee shall follow and document the use of the approved odor evaluation and minimization standard operational procedure in the facility operating record (Condition II.L.1.). {R 299.9602(1)(b), R 299.9605(1) and 40 CFR §264.15(a), which is ABR in R 299.11003}.

D. DESIGN, CONTAINMENT AND ASSESSMENT OF TANK SYSTEMS

The licensee shall operate and maintain all tank systems in accordance with the applicable requirements of R 299.9615 and 40 CFR §§264.191, 264.193, and 264.194, which are ABR in R 299.11003, and the attached plans and specifications in Attachment 10 of this license.

E. MANAGEMENT OF TANK SYSTEMS

1. The licensee shall manage the tank systems in accordance with the requirements of R 299.9615 and 40 CFR §§264.194 and 264.196 which are ABR in R 299.11003, and the spill and overfill prevention procedures specified in Attachment 12 of this license.

2. The licensee shall conduct the treatment of hazardous wastes in accordance with the methods and procedures specified in Attachment 11 of this license. {R 299.9633}

3. The licensee shall operate and maintain all tanks in compliance with the requirements of R 29.4101 to R 29.4504 pursuant to the provisions of the Fire Prevention Act, 1941 PA 207, as amended. {R 299.9615}

4. The licensee shall label tank systems in accordance with the provisions of National Fire Protection Association (NFPA) Standard No. 704. {R 299.9615(5)}

5. The licensee shall clearly mark each tank containing land disposal restricted waste with a description of its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, or record such information for each tank system in the facility operating record. {R 299.9627 and 40 CFR §268.50(a)(2)(ii), which is ABR in R 299.11003}

6. The licensee shall not store any hazardous waste in the tanks referenced in Condition IV.A. of this license for more than one year prior to treatment of its contents on-site or shipment off-site to another appropriately licensed hazardous waste treatment or disposal facility. The licensee may store hazardous waste in a tank for more than the one-year period based upon a petition approved by the Chief of the Waste Management Division demonstrating that such storage is solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal. {R 299.9521(3)(b), R 299.9627, and 40 CFR Part 268, which is ABR in R 299.11003}

F. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

1. The licensee shall not place ignitable waste in a tank system unless the procedures described in Attachment 9 of this license are followed. {R 299.9615 and 40 CFR §264.198(a), which is ABR in R 299.11003}

2. The licensee shall document compliance with Condition IV.F.1. of this license and place this documentation in the operating record (Condition II.L.1. of this license). {R 299.9605, R 299.9609, and 40 CFR §§264.17(c) and 264.73(b)(3), which are ABR in R 299.11003}

3. The licensee shall maintain the protective distances between the tank systems and any public ways, streets, alleys, or adjoining property lines that can be built upon, as required in Tables 2-1 through 2-6 of the NFPA's "Flammable and Combustible Liquids Code" (1977 or 1981) as specified in Attachment 9 of this license, and as required by R 299.9615 and 40 CFR §264.198(b), which is A8R in R 299.11003.

G. PROHIBITION ON STORING OR TREATING IGNITABLE OR REACTIVE WASTES OR MATERIALS

The licensee is prohibited from storing or treating reactive wastes or materials in tank systems at the facility. The licensee may store deactivated reactive waste that does not exhibit the characteristic of reactivity as defined in R 299.9212. {R 299.9521(2)(d) and (3)(b)}]

H. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES OR MATERIALS

1. The licensee shall not place incompatible wastes or incompatible wastes and materials, in the sam tank system or place hazardous waste in a tank system that has not been decontaminated and tl previously held an incompatible waste or material. {R 299.9615 and 40 CFR §264.199, which is ABR in R 299.11003}

2. The licensee shall document compliance with Condition IV.H.1. of this license, as required by R 299.9605 and 40 CFR §264.17(c), and place this documentation in the operating record. The provisions of 40 CFR §264.17(c) are ABR in R 299.11003. {R 299.9609 and 40 CFR §264.73(b)(3), which is ABR in R 299.11003}

I. DISPOSITION OF ACCUMULATED LIQUIDS AND SOLIDS

The licensee shall remove liquids and pumpable solids from the containment system within 24 hours of detection. Non-pumpable solids shall be removed every 60 days. For high precipitation conditions, where removal cannot be completed with 24 hours, removal of the spilled or leaked waste and accumulated precipitation must begin within 24 hours of detection and continue until that removal is complete. Removed spilled and leaked waste and accumulated precipitation shall be managed in accordance with the requirements of Part 111 of Act 451 and the rules, as specified in Attachment 7 of this license. {R 299.9521(3)(b), R 299.9615, and 40 CFR §264.193(c)(4), which is ABR in R 299.11003}

J. COMPLIANCE WITH AIR EMISSION AND WASTE MANAGEMENT REQUIREMENTS FOR STORAGE AND TREATMENT IN TANK SYSTEMS

The licensee shall operate the facility in a manner that will prevent air emissions in violation of Part 55 of Act 451{R 299.9602(1)(b)}

PART V

ENVIRONMENTAL MONITORING CONDITIONS

A. GROUNDWATER MONITORING PROGRAM

1. The licensee shall conduct a detection monitoring program. Under this program, the licensee shall operate and maintain a groundwater monitoring system consisting of monitoring wells labeled OB-18, OB-19, OB-21, OB-23R, OB-36, and OB-47 as shown on Attachment A of the Groundwater Monitoring Program Sampling and Analysis Plan, Attachment 13 of this license. {R 299.9611(2)(b) and R 299.9612}

   The licensee shall sample the monitoring wells in accordance with the procedures specified below:

   (a) Static water level measuring devices, pumps and/or sampling equipment shall be compatible with the parameters sampled and must be thoroughly cleaned and rinsed before use in each monitoring well and piezometer. Sampling procedures shall assure that cross-contamination and changes in water chemistry do not occur. {R 299.9612 and 40 CFR §264.97(d) and (e), which are ABR in R 299.11003}

   (b) The static water elevation shall be determined by methods giving precision to 1/8 inch or 0.01 foot prior to purging water from the wells for sampling. Measurements shall be made from the top of the casing with the elevation of all casings in the monitoring well system related to a permanent reference point, using United States Geological Survey (USGS) datum. {R 299.9612 and 40 CFR §264.97(f), which is ABR in R 299.11003}

   (c) To ensure a representative sample, a volume of water shall be purged that is equal to or greater than three times the amount of water in the well casing, or until pH and specific conductance stabilize, or until the well is dry, before obtaining a sample for analysis as specified in Section III of the Groundwater Monitoring Program Sampling and Analysis Plan, Attachment 13 of this license. Wells shall be sampled immediately after purging where recovery rates allow. Where wells are pumped dry during purging, recovery rates shall be determined and samples taken as soon as sufficient recovery occurs. {R 299.9612 and 40 CFR §264.97(d) and (e), which are ABR in R 299.11003}

   (d) Water removed from each monitoring well shall be managed as specified in Section III of the Groundwater Monitoring Program Sampling and Analysis Plan Attachment 13 of this license. {R 299.9521(3)(b)}

   (e) All monitoring wells and piezometers shall have protective barriers, be clearly labeled, securely capped, and locked when not in use. {R 299.9612 and 40 CFR §264.97(c)-(e), which are ABR in R 299.11003}

   (f) Prior to undertaking monitoring well or piezometer replacement or repair, the licensee shall obtain the written approval of the Waste Management Division. {R 299.9519(5)(c)(i)}

2. The licensee shall collect and analyze samples according to the schedule, parameters, and procedures specified in the Groundwater Monitoring Program Sampling and Analysis Plan, Attachment 13 of this license. The licensee shall submit proposed revisions to the Groundwater Monitoring Program Sampling and Analysis Plan to the Chief of the Waste Management Division for approval prior to implementation and shall revise any other affected document accordingly. If approved, the revisions shall become part of this operating license. {R 299.9519(5)(c)(ii), R 299.9611(2)(a), R 299.9612, and 40 CFR §264.97(d) and (e), which are ABR in R 299.11003}

3. The licensee shall submit an annual groundwater report to the Chief of the Waste Management Division no later than March 1 for the previous calendar year's activities. The report shall include summary of groundwater quality data, data graphs, data tables, statistical analyses to date, and identification of any statistically significant increases (and/or pH decreases) pursuant to Conditions V.A.6. and V.A.11. of this license. The licensee shall determine the groundwater flow rate and direction in the monitored zone[s] at least annually, and provide a groundwater contour map and flow net diagram from this data. This annual report is in addition to the reporting requirements of Condition II.L.4. of this license. {R 299.9612(1) and 40 CFR §264.97(j), which is ABR in R 299.11003}

4. Establishing Background. The licensee shall establish background groundwater quality values at monitoring wells for the parameters specified on Table 3 in Attachment H of the Groundwater Monitoring Program Sampling and Analysis Plan, Attachment 13 of this license.

   (a) Background values for the primary parameters shall be the laboratory detection limit for the chemical or in specific cases where the chemical may be present as a common laboratory contaminant, a more rigorously determined limit, as specified in Section 3.2 of The Statistical Monitoring Plan For Groundwater Monitoring, Attachment L of Attachment 13 of this license.

   (b) Background values for the secondary parameters shall be calculated annually for each monitoring well in accordance with the specifications contained in Section 3.2 of The Statistical Monitoring Plan For Groundwater Monitoring, Attachment L of Attachment 13 of this license.

   (c) In the event that groundwater quality at the upgradient wells shows a significant change, a petition may be submitted to the Chief of the Waste Management Division to re-establish background quality. Background values may be re-established only upon written approval of the Chief of the Waste Management Division.

   {R 299.9612(1)(d) and (e) and 40 CFR §264.97(a) and (g), which are ABR in R 299.11003}

5. Detection Monitoring Program. The licensee shall sample monitoring wells OB-18, OB-19R, OB-21, OB-21, OB-23R, OB-36, and OB-47 on a quarterly basis and analyze the samples for the primary, secondary, and tertiary parameters listed on Table 3 in Attachment H of the Groundwater Monitoring Program Sampling and Analysis Plan, Attachment 13 of this license. Data and evaluations must be submitted to the Chief of the Waste Management Division in accordance with the time frame specified in Condition II.L.4. of this license. {R 299.9612 and 40 CFR §264.98}

6. Primary Parameters. Within 60 days of each sampling of each monitoring well, the licensee shall determine if a statistically significant increase (or change in pH) has occurred compared to background levels for each primary parameter listed on Figure 1 of the Statistical Monitoring Plan for Groundwater Monitoring Data, Attachment L of Attachment 13 of this license. A statistically significant increase (or change in pH) shall be determined using the statistical evaluation specified in the Statistical Monitoring Plan, Attachment 13 of this license. {R 299.9612(1)(e) and 40 CFR §264.97(h) and (i), which are ABR in R 299.11003}

7. If a statistically significant increase (or change in pH) in a primary monitoring parameter is detected, the licensee shall notify the Waste Management Division, Hazardous Waste Program Section, Technical Support Unit by telephone within one working day and arrange a resampling as soon as possible to confirm if a statistically significant increase (or change in pH) exists. Resampling must include not less than four replicate samples at the affected well[s] for the primary parameter[s] in question. {R 299.9612 and 40 CFR §264.97(g), which is ABR in R 299.11003}

8. If the licensee determines pursuant to Conditions V.A.6. and V.A.7. of this license that a confirmed statistically significant increase (or change in pH) has occurred for primary parameters, the licensee shall: {R 299.9612 and 40 CFR §264.98(f) and (g), which are ABR in R 299.11003}

(a) Notify the Director within one working day by calling the Chief of the Waste Management Division or the appropriate Waste Management Division District Supervisor or, in the event of their unavailability, the Department of Environmental Quality PEAS at 1-800-292-4706.

(b) Provide follow-up notification to the Chief of the Waste Management Division in writing within seven calendar days of the telephone call. The notification shall indicate what parameters or constituents have shown statistically significant changes and the well[s] in which the changes have occurred.

(c) As soon as possible, sample the groundwater in all monitoring wells within 1000 feet of the affected well for primary and secondary parameters and determine the concentration of all constituents identified in Appendix IX of 40 CFR Part 261 that are present in groundwater and for which approved analysis methods exist. The licensee may submit a request for modified Appendix IX analyses for review and approval by the Chief of the WMD. The licensee shall also establish background values for Appendix IX constituents detected pursuant to R 299.9612 and 40 CFR §264.98(g)(3), which is ABR in R 299.11003.

(d) Immediately take steps to determine the cause of the contamination and eliminate the source of discharge.

(e) Within 90 days of the determination, submit to the Chief of the Waste Management Division an application for a license modification to establish a compliance monitoring and corrective action program meeting the requirements of R 299.9612. The application shall include the following information:

(i) An identification of the concentration of all Appendix IX constituents found in the groundwater.

(ii) Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of R 299.9612.

(iii) Any proposed changes to the monitoring frequency, sampling and analysis procedures or methods, or statistical procedures used at the facility necessary to meet the requirements of R 299.9612.

(f) Within 180 days, submit to the Chief of the Waste Management Division detailed description of corrective actions that shall achieve compliance with applicable laws and rules, including a schedule of implementation. Corrective action shall also meet the requirements of R 299.9629, and include a plan for a groundwater monitoring program that shall demonstrate the effectiveness of the corrective action. Such a groundwater monitoring program may be based on a compliance monitoring program developed to meet the requirements of 40 CFR §264.99, which is ABR in R 299.11003.

(g) During the period prior to a license modification requiring a compliance monitoring and corrective action program, the licensee shall provide the Chief of the Waste Management Division, or his or her designee, with weekly telephone updates and written reports every two weeks regarding the progress to date in determining the cause of contamination and eliminating the discharge. The licensee shall include in the written report the results of all samples from environmental monitoring conducted by the licensee.

9. If the licensee determines pursuant to Conditions V.A.6. and V.A.7. of this license that a statistically significant increase (or change in pH) in hazardous constituents has occurred in groundwater, it may demonstrate that a source other than the licensed facility caused the increase (or change in pH) or that the increase (or change in pH) resulted from error in sampling, analysis or evaluation. While the licensee may make a demonstration under this condition in addition to, or in lieu of, submitting a license modification application within the time specified in Condition V.A.8.(e) of this license, the licensee is not relieved of the requirement to submit a license modification application within the time specified unless the demonstration made under this condition successfully shows that a source other than the licensed facility caused the increase (or change in pH) or that the increase (or change in pH) resulted from an error in sampling, analysis, or evaluation. In making a demonstration under this condition, the licensee shall:

   (a) Notify the Chief of the Waste Management Division within seven days of the determination that it intends to make a demonstration under this condition.

   (b) Within 90 days of the determination, submit a report to the Chief of the Waste Management Division that demonstrates that a source other than the licensed facility solely caused the increase (or change in pH), or that the increase (or change in pH) was caused by error in sampling, analysis, or evaluation.

   (c) Within 90 days of the determination, submit to the Chief of the Waste Management Division an application for a license modification to make any appropriate changes to the groundwater monitoring program at the facility.

   (d) Continue to monitor groundwater in compliance with this license.

   {R 299.9612 and 40 CFR §264.98(g)(6), which is ABR in R 299.11003}

10. In the event that the Chief of the Waste Management Division determines from the findings of Conditions V.A.6. and V.A.7. of this license that a statistically significant increase (or change in pH) in hazardous constituents has occurred in the groundwater, and the Chief of the Waste Management Division finds, in accordance with Section 11148 of Act 451, that the increase (or change in pH) may present an imminent and substantial hazard to the health of persons or to the natural resources, or is endangering or causing damage to public health or the environment, the licensee shall immediately cease waste receipt, storage, and treatment at the affected unit[s] until instructed by the Chief of the Waste Management Division that operations may resume. {R 299.9612(1)(g)}

11. <u>Secondary Parameters</u>. Within 60 days of each sampling of each monitoring well, the licensee shall determine if a statistically significant increase (or change in pH) has occurred compared to background levels for each secondary parameter listed on Figure 1 of the Statistical Monitoring Plan for Groundwater Monitoring Data, Attachment L of Attachment 13 of this license. A significant increase (or change in pH) shall be determined using the statistical evaluation specified in the Statistical Monitoring Plan, Attachment 13 of this license. {R 299.9612(1)(c)}

12. If the licensee determines pursuant to Condition V.A.11. of this license that a statistically significant increase (or change in pH) has occurred for any secondary parameter, the licensee shall:

   (a) Notify the Director, within one working day, by calling the Chief of the Waste Management Division or the appropriate Waste Management Division District Supervisor.

   (b) Resample the affected well(s) for the secondary parameters that showed a statistical increase, taking not less than four samples at each well.

(c) Redetermine whether or not a statistically significant increase (or change in pH) has occurred, within one working day, notify the Chief of the Waste Management Division.

(d) If confirmed, the licensee shall immediately take steps to determine the cause of contamination and eliminate the source of the discharge. A report that explains the chronology of events, investigative methods, all lab analyses, calculations, field activities, and findings/conclusions, related to this determination shall be submitted within 60 days of a statistically significant determination under Condition V.A.11. of this license.

(e) The licensee may demonstrate that a source other than the facility, or an error in sampling, analysis, or evaluation solely caused the increase. A report that contains the information set forth in Condition V.A.12.(d) of this license shall be submitted within 60 days of a statistically significant determination under Condition V.A.11. of this license.

{R 299.9612(1)(c)}

B. AMBIENT AIR MONITORING PROGRAM

1. The licensee shall conduct ambient air monitoring in accordance with the program specified in Attachment 14 of this license. {R 299.9611(2)(c)}

2. The licensee shall report ambient air monitoring results as required by Condition II.L.4. of this license.

3. Within 30 days of issuance of the Wayne Disposal, Incorporated Consent Order WMD Order No. 111-10-99, the licensee shall modify the ambient air monitoring program of this license to be consistent with the applicable provisions of the Consent Order.

PART VI

CORRECTIVE ACTION CONDITIONS

A. CORRECTIVE ACTION AT THE FACILITY

The licensee shall implement corrective action for all releases of a contaminant from any waste management units at the facility, regardless of when the contaminant may have been placed in or released from the waste management unit. For the purposes of this license, the term "corrective action" means an action determined by the Chief of the Waste Management Division to be necessary to protect the public health, safety, welfare, or the environment, and includes, but is not limited to, investigation, evaluation, cleanup, removal, remediation, monitoring, containment, isolation, treatment, storage, management, temporary relocation of people, and provision of alternative water supplies, or any corrective action allowed under Title II of the federal Solid Waste Disposal Act, or regulations promulgated pursuant to that act. {Sections 11102 and 11115a of Act 451 and R 299.9629}

B. CORRECTIVE ACTION BEYOND THE FACILITY BOUNDARY

The licensee shall implement correction action beyond the facility boundary if the release of a contaminant has or may have migrated or has or may have been emitted, beyond the facility boundary, unless the licensee demonstrates to the satisfaction of the Chief of the Waste Management Division that, despite the licensee's best efforts, the licensee was unable to obtain the necessary permission to undertake this correction action. The licensee shall not be relieved of all responsibility to clean up a release that has migrated or has been emitted beyond the facility boundary where off-site access is denied. On-site measures to address such releases shall be addressed under this part of the license, as determined to be necessary on a case-by-case basis. {Section 11115a of Act 451 and R 299.9629}

C. IDENTIFICATION OF EXISTING WASTE MANAGEMENT UNITS

The following waste management units (WMUs) have been identified at the facility:

WMU Number 1	The Former Michigan Disposal Waste Processing Facility
WMU Number 2	Lagoon A and Stormwater Retention Basin
WMU Number 3	Lagoon B
WMU Number 4	Lagoon C
WMU Number 5	The Existing Michigan Disposal Waste Treatment Plant
WMU Number 6	Southeast Container Storage Area

1. The following WMUs, identified in the *Overview of Operation, Closure, and Environmental Monitoring Former Michigan Disposal, Inc. Waste Processing Facility Report* dated January 7, 1992, require further corrective action at this time. The MDEQ acknowledges the receipt of the January 7, 1992 Report and it is under review. No final determination regarding the status of these units has been made at the time this operating license was issued.

a.	WMU Number 2	Lagoon A and Stormwater Retention Basin
b.	WMU Number 3	Lagoon B
c.	WMU Number 4	Lagoon C

2. The following WMUs, , identified in the *Overview of Operation, Closure, and Environmental Monitoring Former Michigan Disposal, Inc. Waste Processing Facility Report* dated January 7, 1992 and as newly regulated by this operating license, do not require corrective action at this time because the units are currently operating pursuant to the act and its rules with no evidence of a release of any contaminants. Corrective action may be required when the units undergo final closure.

   a. WMU Number 5 — The Existing Michigan Disposal Waste Treatment Plant

   b. WMU Number 6 — Southeast Container Storage Area

3. The following WMU, identified in the *Closure Certification Former Processing Plant Report* dated March 19, 1991, and in the *Overview of Operation, Closure, and Environmental Monitoring Former Michigan Disposal, Inc. Waste Processing Facility Report* dated January 7, 1992, requires no further corrective action at this time. The determination that no further corrective action is required at this time is based on information provided in the March 19, 1991 and January 7, 1992 Reports.

   WMU Number 1 — The Former Michigan Disposal Waste Processing Facility

4. Within 30 days of discovery of a new release of a contaminant from a WMU, the licensee shall provide written notification to the Chief of the Waste Management Division. The written notification shall include all available information pertaining to the release. Based on a review of all of the information, the Chief of the Waste Management Division may require corrective action for the newly identified release. The licensee shall submit a written RCRA Facility Investigation (RFI) Work Plan to the Chief of the Waste Management Division within 60 days after written notification by the Chief of the Waste Management Division that corrective action for the release is required.

{Section 11115a of Act 451 and R 299.9629}

D. IDENTIFICATION OF NEW WASTE MANAGEMENT UNITS

1. Within 30 days of discovery of a new WMU or a release of a contaminant from a new WMU, the licensee shall provide written notification to the Chief of the Waste Management Division. The written notification shall include all of the following information:

   a. The location of the unit on the facility topographic map.

   b. The designation of the type of unit.

   c. The general dimensions and structural description, including any available drawings of the unit.

   d. The date the unit was operated.

   e. Specification of all waste(s) that have been managed in the unit.

   f. All available information pertaining to any release of a contaminant from the unit.

2. Based on a review of all of the information provided in Condition VI.D.1. of this license, the Chief of the Waste Management Division may require corrective action for the newly identifie WMU. The licensee shall submit a written RFI Work Plan to the Chief of the Waste Management Division within 60 days after written notification by the Chief of the Waste Management Division that corrective action for the unit is required.

{Section 11115a of Act 451, R 299.9629, and 40 CFR §270.14(d), which is ABR in R 299.11003}

E. RCRA FACILITY INVESTIGATION

The licensee has conducted a RCRA Facility Investigation (RFI) to determine if a release of a contaminant from the WMU 1, the Former Michigan Disposal, Inc. Waste Processing Facility, identified in Condition VI.C.1. of this license has occurred. If the results of this RFI indicate that a release has occurred, then the licensee shall evaluate the nature and extent of the release. The licensee shall conduct a RCRA Facility Investigation (RFI) to determine if a release of a contaminant(s) from any of the WMUs identified in Conditions VI.C.2. or VI.D.2 of this license has occurred, and if a release(s) has occurred, evaluate the nature and extent of the release. The RFI shall be conducted in accordance with Conditions VI.E.1.-VI.E.5. and Attachment 15, RFI Scope of Work, of this license.

1. The licensee shall submit a written RFI Work Plan to the Chief of the Waste Management Division for review and approval within 60 days after the final closure of WMU 5 and WMU 6.

2. The Chief of the Waste Management Division will approve or modify and approve the RFI Work Plan, or provide a written Notice of Deficiency on the RFI Work Plan. The licensee shall modify the RFI Work Plan in accordance with the Notice of Deficiency and submit a new RFI Work Plan or revisions to the RFI Work Plan to the Chief of Waste Management Division for approval within 30 days after receipt of the Notice of Deficiency. Upon approval by the Chief of the Waste Management Division, the RFI Work Plan becomes an enforceable condition of this license.

3. The licensee shall implement the approved RFI Work Plan within 90 days after receipt of the Chief of the Waste Management Division's written approval of the RFI Work Plan.

4. The licensee shall submit a written RFI Final Report to the Chief of the Waste Management Division for review and approval within 60 days after the completion of the RFI. The RFI Final Report shall document compliance with the approved RFI Work Plan and support further corrective action at the facility.

5. The Chief of the Waste Management Division will approve the RFI Final Report or provide a written Notice of Deficiency on the RFI Final Report. The licensee shall modify the RFI Final Report in accordance with the Notice of Deficiency and submit a new RFI Final Report or revisions to the RFI Final Report to the Chief of the Waste Management Division for approval within 30 days of receipt of the Notice of Deficiency.

6. The licensee shall submit bi-monthly written RFI progress reports to the Chief of the Waste Management Division.

7. The licensee shall comply with the time frames specified in Condition VI.E.1.-VI.E.6. of this license unless otherwise approved in writing by the Chief of the Waste Management Division.

{Section 11115a of Act 451 and R 299.9629}

F. DETERMINATION OF NO FURTHER ACTION

1. Based on the results of the RFI and other relevant information, the licensee shall submit a written request for a minor license modification to the Chief of the Waste Management Division if the licensee wishes to terminate corrective action for a specific WMU identified in Conditions VI.C.1. or V.D.2. of this license. The licensee must conclusively demonstrate that there have been no releases of a contaminant(s) from the WMU and that the WMU does not pose a threat to public health, safety, welfare, or the environment.

2. Based on the results of the RFI and other relevant information, the licensee shall submit a written request for a major license modification to the Chief of the Waste Management Division if the licensee wishes to terminate facility-wide corrective action. The licensee must conclusively demonstrate that there have been no releases of a contaminant(s) from any of the WMUs at the facility and that none of the WMUs pose a threat to public health, safety, welfare, or the environment.

3. If, based upon a review of the licensee's request for a license modification pursuant to Conditions VI.F.1. or VI.F.2. of this license, the results of the completed RFI, and other relevant information, the Chief of the Waste Management Division determines that the releases or suspected releases of a contaminant(s) do not exist and that the WMU(s) do not pose a threat to public health, safety, welfare, or the environment, the Chief of the Waste Management Division will approve the requested modification.

4. A determination of no further action shall not preclude the Chief of the Waste Management Division from requiring continued or periodic monitoring of air, soil, groundwater, or surface water, if necessary to protect public health, safety, welfare, or the environment, when facility-specific circumstances indicate that potential or actual releases of a contaminant(s) may occur.

5. A determination of no further action shall not preclude the Chief of the Waste Management Division from requiring further corrective action at a later date, if new information or subsequent analysis indicates that a release or potential release of a contaminant(s) from a WMU at the facility may pose a threat to public health, safety, welfare, or the environment. The Chief of the Waste Management Division will initiate the necessary license modifications if further corrective action is required at a later date.

{Section 11115a of Act 451 and R 299.9629}

G. CORRECTIVE MEASURES STUDY

If the Chief of the Waste Management Division determines, based on the results of the RFI and other relevant information, that corrective measures are necessary, the Chief of the Waste Management Division will notify the licensee in writing that a Corrective Measures Study (CMS) is required. If required by the Chief of the Waste Management Division, the licensee shall conduct a CMS to develop and evaluate the corrective measure alternative(s) necessary to address the release(s) of a contaminant(s) and the WMU(s) that are identified in the approved RFI Final Report as requiring further corrective action. The CMS shall be conducted in accordance with Conditions VI.G.1.- VI.G.7. and Attachment 16, CMS Scope of Work, of this license.

1. The licensee shall submit a written CMS Work Plan to the Chief of the Waste Management Division for review and approval within 60 days after receipt of written notification that a CMS is required.

2. The Chief of the Waste Management Division will approve or modify and approve the CMS Work Plan, or provide a written Notice of Deficiency on the CMS Work Plan. The licensee sha" modify the CMS Work Plan in accordance with the Notice of Deficiency and submit a new CN Work Plan or revisions to CMS Work Plan to the Chief of Waste Management Division for approval within 30 days after receipt of the Notice of Deficiency. Upon approval by the Chief of the Waste Management Division, the CMS Work Plan becomes an enforceable condition of this license.

3. The licensee shall implement the approved CMS Work Plan within 90 days after receipt of the Chief of the Waste Management Division's written approval of the CMS Work Plan.

4. The licensee shall submit a written CMS Final Report to the Chief of the Waste Management Division for review and approval within 60 days after the completion of the CMS. The CMS Final Report shall document compliance with the approved CMS Work Plan and support further corrective action at the facility.

5. The Chief of the Waste Management Division will approve the CMS Final Report or provide a written Notice of Deficiency on the CMS Final Report. The licensee shall modify the CMS Final Report in accordance with the Notice of Deficiency and submit a new CMS Final Report or revisions to the CMS Final Report to the Chief of the Waste Management Division for approval within 30 days of receipt of the Notice of Deficiency.

6. The licensee shall submit bi-monthly written CMS progress reports to the Chief of the Waste Management Division.

7. The licensee shall comply with the time frames specified in Condition VI.G.1.-VI.G.6. of this license unless otherwise approved in writing by the Chief of the Waste Management Division.

{Section 11115a of Act 451 and R 299.9629}

H. CORRECTIVE MEASURES IMPLEMENTATION

The licensee shall conduct Corrective Measures Implementation (CMI) based on the CMS Final Report approved by the Chief of the Waste Management Division. The CMI shall be conducted in accordance with Conditions VI.H.1.-VI.H.10. and Attachment 17, CMI Scope of Work, of this license.

1. The licensee shall submit a written CMI Work Plan to the Chief of the Waste Management Division for review and approval within 60 days after the approval of the CMS Final Report by the Chief of the Waste Management Division.

2. The Chief of the Waste Management Division will approve or modify and approve the CMI Work Plan, or provide a written Notice of Deficiency on the CMI Work Plan. The licensee shall modify the CMI Work Plan in accordance with the Notice of Deficiency and submit a new CMI Work Plan or revisions to the CMI Work Plan to the Chief of the Waste Management Division for approval within 30 days after receipt of the Notice of Deficiency. The Waste Management Division will provide notice of its draft decision on the CMI Work Plan to persons on the facility mailing list and an opportunity for a public hearing. Upon approval by the Chief of the Waste Management Division, the CMI Work Plan becomes an enforceable condition of this license.

3. The licensee shall implement the approved CMI Work Plan within 90 days after receipt of the Chief of the Waste Management Division's written approval of the CMI Work Plan.

4. The licensee shall submit a written Construction Completion Report to the Chief of the Waste Management Division for review and approval within 60 days after the construction associate

PART VII

SCHEDULE OF COMPLIANCE

A. North and Southeast Container Storage Areas

1. The licensee shall not store untreated hazardous waste, treated hazardous waste, or decharacterized waste meeting land disposal restrictions in the Southeast Container Storage Area (SECSA) until written approval is received from the Chief of the Waste Management Division (WMD). The licensee shall not store treated hazardous waste or decharacterized waste meeting land disposal restrictions in the North Container Storage Area (NCSA) until written approval is received from the Chief of the WMD.

2. The licensee shall submit conceptual plans for the construction of the proposed hazardous waste container storage buildings to be located at the NCSA and the SECSA to the Chief of the WMD and the Chief of the Air Quality Division (AQD) within 60 days of issuance of this license. The hazardous waste container storage buildings shall be designed with air pollution control devices appropriate for the proposed operations. A construction schedule shall accompany these submittals.

3. The licensee shall obtain all necessary approvals from MDEQ Waste Management Division and Air Quality Division, if required under Part 55 of Act 451 and its rules for the proposed operations, prior to conducting operations within the hazardous waste container storage buildings. The MDEQ Waste Management Division shall approve or modify and approve the submittals or provide a written Notice of Deficiency on the submittals. The MDEQ Air Quality Division's review process may be conducted independently of the Waste Management Division's review process pursuant to their authority under Part 55 of Act 451 and its rules.

4. Within 90 days of receipt of written approval or determination of the conceptual plans in accordance with Condition VII.A.2., the licensee shall submit detailed engineering design plans and specifications to the Chief of the WMD and the Chief of the AQD, if air pollution control equipment has been determined necessary for the proposed operations.

5. Within 6 months of receipt of written approval of the detailed engineering design plans and specifications in accordance with Condition VII.A.2,, the licensee shall initiate construction in accordance with the approved engineering design plans and specifications and construction schedule.

6. The licensee shall complete construction of the proposed buildings in accordance with the approved construction schedule. Any modifications to the approved construction schedule must be approved by the Chief of the WMD, prior to implementation.

7. The licensee shall submit as-built drawings of the constructed hazardous waste container storage buildings and a construction certification report signed by a professional engineer to the Chief of the WMD within 30 days of construction completion. Within 30 days of receipt of the construction certification report for the SECSA and the modified waste analysis plan required by Condition VII.B.2.of this license, the WMD will review the submittals and conduct an inspection of the SECSA. Upon receipt of written approval of the submittals, the licensee may begin operations within the SECSA. The construction certification report submittal and inspection requirement also applies to the construction and operation of the NCSA.

8. Within 60 days of the effective date of this license, the licensee shall submit a workplan to investigate the presence and quality of groundwater present within the upper sand unit at the facility.

a) The plan shall contain, at a minimum, the following elements:

1) The locations of all known structures which potentially influence perched groundwater flow in the vicinity of the SECSA and other waste handling areas at the facility.

2) A groundwater sampling and analysis plan (SAP) which shall include proposed locations and methodologies for the collection of groundwater samples. In addition, the groundwater SAP shall include a proposed list of analytical parameters, methods and detection limits, a description of sampling procedures, and a schedule for the completion of the workplan.

3) The results of the investigation shall include a groundwater contour map of the upper saturated unit, a sand thickness map, top of clay elevations, a map showing various cross sections, including structures identified in condition VII.A.4.(a)(1), and the results of the groundwater investigation.

b) Based on the results of the investigation, the licensee shall provide recommendations to the Technical Support Unit of the WMD for the long-term monitoring of the SECSA and other waste handling areas at the facility for review and approval.

c) The Chief of the WMD shall approve, disapprove, or approve with modifications the workplan. In the event of disapproval, WMD shall specify any deficiencies and required modifications or additions to the workplan. The licensee shall respond to any deficiencies in the workplan within 30 days of notification by WMD. The licensee shall complete the approved workplan in accordance with the schedule contained in the workplan.

d) Upon approval, the workplan and any long-term groundwater monitoring determined to be necessary by the WMD as result of workplan implementation shall become an enforceable part of this license.

B. Waste Analysis Plan

1. The licensee shall submit a compatibility test workplan to the Chief of the WMD within 60 days of issuance of this license. The workplan shall include the following:

(a) Specific methodologies for each simulated waste treatment type.

(b) Definitions for quality assurance/quality control for the lab simulations.

(c) Ratios of the waste, reagents, and combustible containers, supports, and packaging in the lab simulations to the amounts in the actual respective treatment tank.

(d) A recording and reporting format used to document each lab simulation.

(e) The results of lab simulation shall be maintained in accordance with Condition II.L.1.

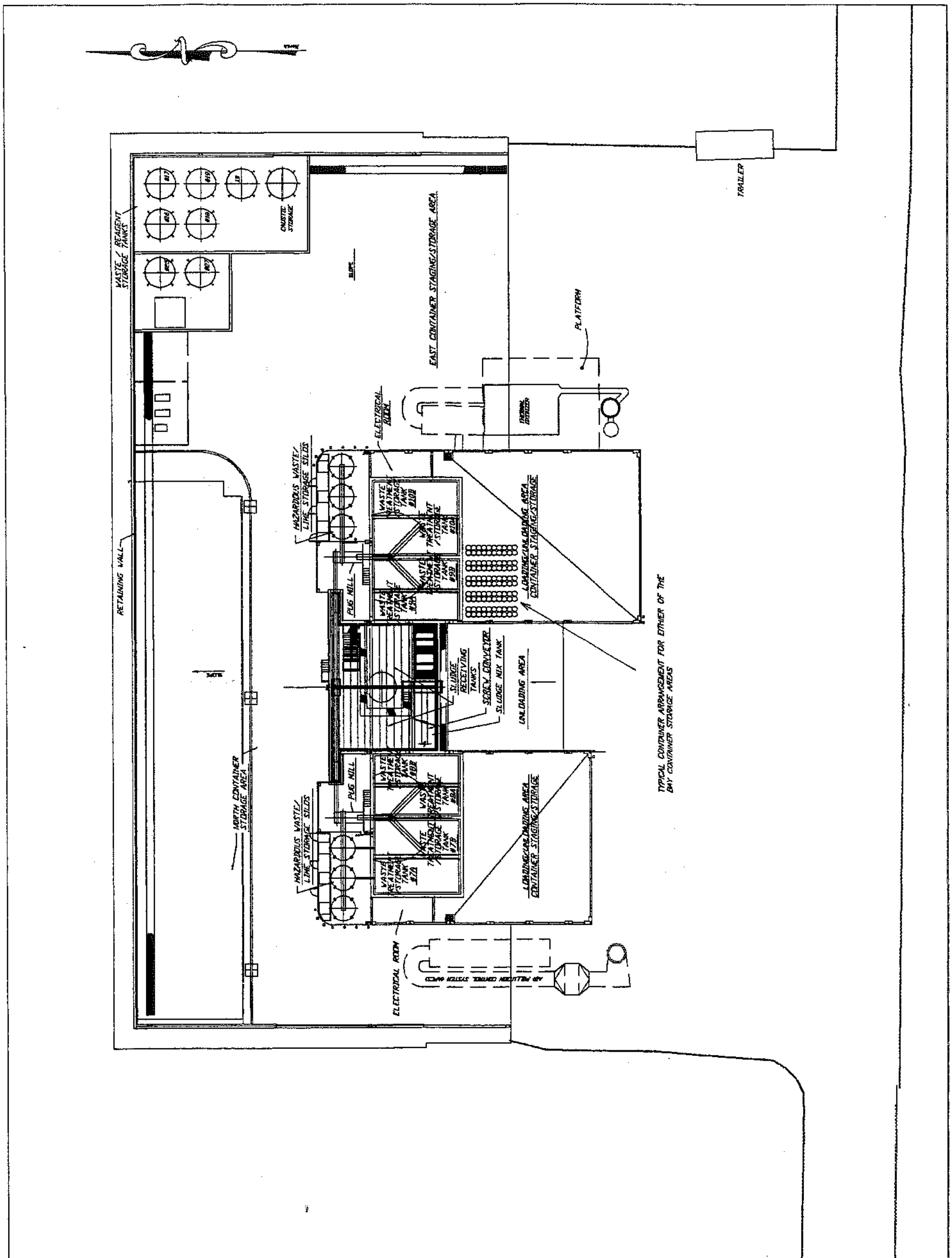
of this license.

(f) Comparisons between the results of lab simulation and each respective actual treatment tank shall be performed and recorded. Any problems shall also be recorded.

2. Within 30 days of construction completion and prior to the operation of the SECSA, the licensee shall submit to the Chief of the WMD, a modified waste analysis plan that details how the licensee proposes to manage wastes in the SECSA. Upon approval, the modified waste analysis plan shall be an enforceable part of this license.

{R 299.9521(2)(a) and 40 CFR §270.33}

INDEX OF ATTACHMENTS



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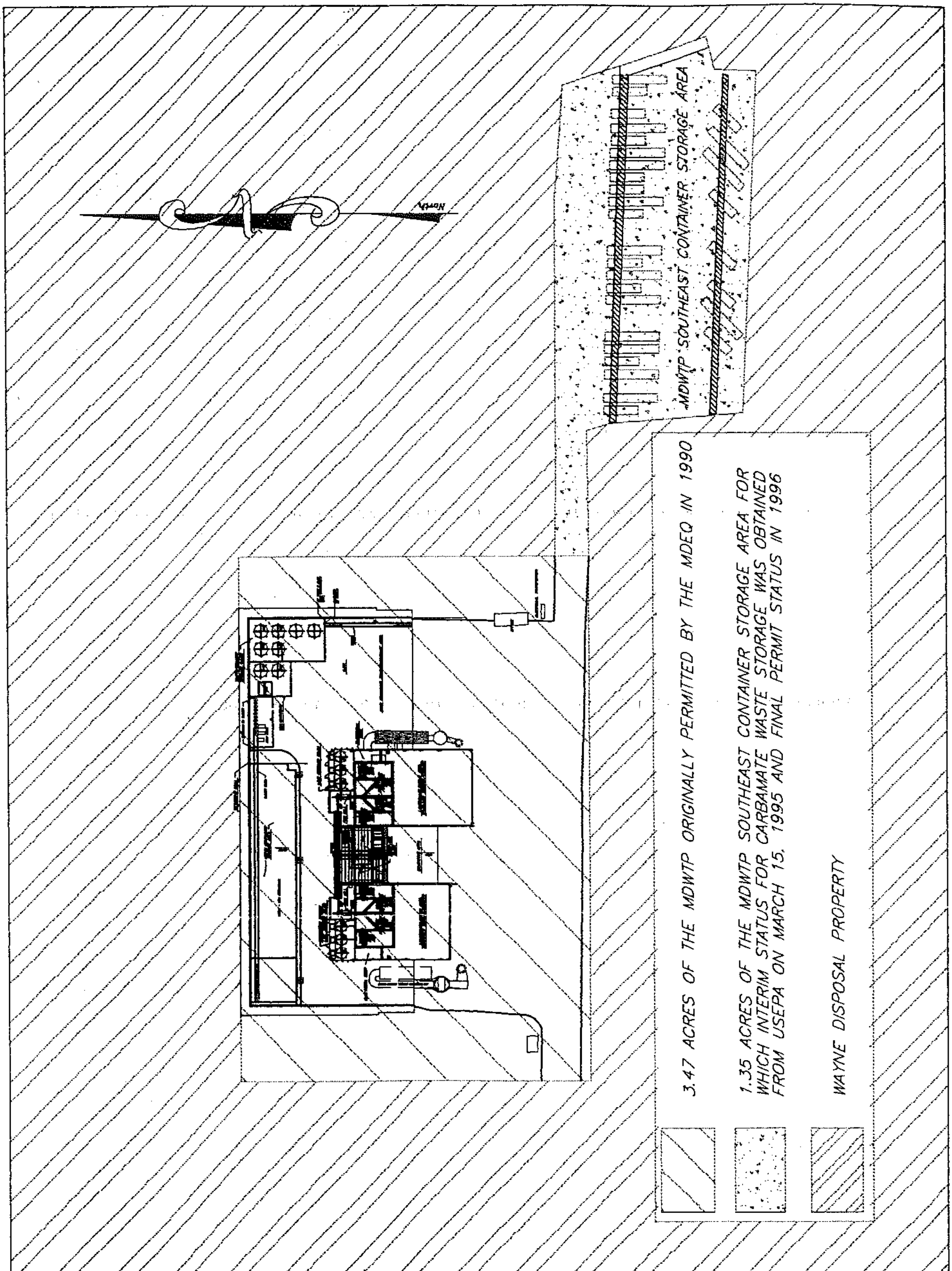

THE ENVIRONMENTAL QUALITY COMPANY	LOCATION: MICHIGAN DISPOSAL		TITLE: SITE PLAN
	SCALE: NONE	DATE: 11/20/98	FILENAME: MDWTP2

ATTACHMENT 1

WASTE ANALYSIS PLAN

WASTE ANALYSIS PLAN

40 CFR 264.13b & c

AND

MI ACT 451 R504(1)c

Michigan Disposal Waste Treatment Plant
49350-N-I-94 Service Drive
Belleville, Michigan 48111

USEPA ID No. MID-000724831

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SECTION PAGE

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1.0 INTRODUCTION

The purpose of this Waste Analysis Plan (WAP) is to identify and document the overall operational procedures, analytical techniques, and the necessary sampling methodologies which are undertaken for hazardous wastes that are received by the Michigan Disposal Waste Treatment Plant for treatment, storage, and disposal as required by Michigan Act 451 R299.9504(1)(c). Specifically, this WAP delineates the following:

- Facility Description

  Section 2.0 outlines the Michigan Disposal Waste Treatment Plant waste management units and processes;

- Operational Procedures

  Section 3.0 outlines pre-approval, incoming load, and process control procedures that Michigan Disposal Waste Treatment Plant will utilize to ensure proper acceptance, treatment, storage, or disposal of waste. These procedures include those used to inspect and, if necessary, analyze each movement of hazardous waste received at the facility to ensure it matches the identity of the waste designated on the accompanying manifest;

- Waste Analysis Parameters

  Section 4.0 outlines the criteria and rationale for parameter selection as well as the parameter testing frequency and analyses the waste generators have agreed to supply;

- Analytical Test Methodologies

  Section 5.0 outlines the techniques Michigan Disposal Waste Treatment Plant will utilize to determine the presence or absence of specific waste properties to ensure proper management of the waste at the facility;

- Sampling Methodologies

  Section 6.0 outlines the proper sampling method(s) for a given waste type (i.e., solid, sludges, liquid) and container (e.g., drums, bulk tanker, or roll-off box) to obtain representative waste samples to ensure accurate analytical results when a waste is analyzed.

This WAP outlines the processes, references, and procedures utilized by Michigan Disposal Waste Treatment Plant to ensure that the following objectives are met:

- Only waste types permitted by the facility operating license are approved and accepted for storage or treatment;
- Wastes that are potentially incompatible with each other are not commingled;
- Waste shipments arriving for storage or treatment meet the description and characteristics as represented by the generator; and
- Proper documentation and recordkeeping is performed.

The analytical results of incoming waste shipments requiring analysis as part of the incoming waste shipment identification, as well as the analysis and information developed as part of the pre-acceptance, storage, and treatment procedures, are maintained in the facility's operating record.

The forms referenced within this WAP are typical forms currently used by the facility. These forms will periodically require updating based upon changes in regulations, customer needs, operations, or as company policy dictates.

Michigan Disposal Waste Treatment Plant strives to maintain, at all times, complete compliance with all applicable regulations. As new testing requirements (e.g., Universal Treatment Standards) often become effective prior to the time WAP revisions can be formally made and approved by all appropriate agencies, the facility will have, in place, a protocol specifying any new regulatory testing and frequency requirements prior to receipt and/or processing of the regulated wastes. The facility may also periodically review and revise the protocol to reflect scientific advances, enhance efficiency, or to address additional regulatory requirements. If WAP revisions are necessary, they will be submitted to the Michigan Department of Natural Resources (MDNR) in accordance with Act 451 R299.9519.

2.0 FACILITY DESCRIPTION

2.1 Description of General Facility Processes

The Michigan Disposal Waste Treatment Plant operations include receiving, storage, and treatment of hazardous wastes permitted by the MDNR under the facility operating license and the USEPA under a federal HSWA permit (MID-000724831).

The specific routine operations and work areas include:

- Waste receiving and quality control (QC);
- Waste loading/unloading;
- Reagent unloading and tank storage;
- Waste storage in tanks;
- Waste treatment in tanks;
- Container staging and storage; and
- Shipment of wastes off-site to permitted treatment, storage, and disposal facilities (TSDFs).

The requirements for operations in these areas are defined in and regulated by the facility operating license and federal HSWA permit. Non-hazardous wastes are managed in accordance with the facility's Part 641 license.

2.2 Waste Identification and Classification

The waste types acceptable for treatment and storage at the facility are defined in Appendix A of this document.

The facility license has specific restrictions regarding the waste types and concentrations of the following waste contaminants **NOT ACCEPTABLE** for treatment:

- Volatile organic compound (VOC) content greater than (>) 2.0-percent by weight for hazardous waste and >20.0-percent by weight for non-hazardous waste;
- Flammable wastes (less than (<) 90-degrees Fahrenheit (°F) flashpoint);
- Reactive wastes as defined by R299.9212(3); and
- Polychlorinated biphenyls (PCBs) >50 parts per million (ppm).

2.3 Description of Waste Management Units

The Michigan Disposal Waste Treatment Plant is a liquid and solid hazardous waste storage and treatment facility. Containerized wastes may be staged/stored on-site before and after treatment in one of the following areas:

- East Container Staging Area
- North Container Storage Area
- East and West Loading/Unloading Bays
- Southeast Container Storage Area

Wastes are fed through a screw conveyor from the sludge feed tanks to pugmills at the east or west ends of the facility. Wastes may be placed directly into the waste treatment tanks, and mixed, using an excavator, with modifiers or deactivation, neutralization, chemical oxidation, chemical reduction or stabilization reagents, as required for the specific wastes being treated. The facility currently uses a backhoe shear attachment to crush solid waste drums. Prior to being crushed over and into a treatment tank the drums are staged on the paved floor in front of the treatment tanks.

Containers may be properly landfilled or sold for scrap. The facility is equipped with air pollution control systems for particulate, odor, and emission control.

Liquid hazardous wastes to be treated in the pozzolanic stabilization process may be stored in four, 20,000-gallon, vertical storage tanks (T-16 through T-19) and two, 40,000-gallon sludge feed tanks (T-11 and T-12) or placed directly into tanks T-7 - T10. Liquid reagents are stored in two, 20,000-gallon vertical tanks (T-25 and T-27).

Electric arc furnace dust (K061) waste or other dry, flowable bulk solid hazardous wastes may be stored in three 100 cubic yard (cy) silos (T-1 through T-3). Lime kiln flue dust, cement kiln flue dust, and lime are also used for stabilization and may be stored in all six silos (T-1 through T-6). The dusts are fed from the silos to the closest pugmill and treatment tank at a controlled rate to effect treatment of liquid and solid wastes. Other reagents, such as ferrous sulfate, may be added directly to the tanks in bag, drum, or bulk quantities.

Listed and characteristic hazardous wastes and non-hazardous wastes are stored and treated in the storage/treatment tanks, storage tanks, and pugmills on the west side of the plant (Tanks 7a, 7b, 8a, 8b, 11, and 14) and similarly stored and treated on the east side of the plant (Tanks 9a, 9b, 10a, 10b, 12, and 15). In both cases, treatment consists of blending the waste in sludge feed tanks prior to treatment in the pugmills or mixing and treatment directly in the storage/treatment tanks. Tanks and pugmills will be decontaminated if changed from storage/treatment of listed wastes to characteristic wastes. Decontamination consists of water washing the tank or pugmill. The rinse waters are directed to the tank in which the listed wastes were treated (or a tank containing a compatible waste that is in treatment). They are collected with a vacuum truck and transferred into a treatment tank that contains a compatible waste that is in treatment. Before characteristic or non-hazardous wastes are managed in the decontaminated pugmill, the decontamination step is noted on the Batch Ticket for the tank that receives the rinse waters.

Containerized hazardous waste and non-hazardous wastes are staged and stored on concrete pads at the East Container Staging Area, the Southeast Container Storage Area, the North Container Storage Area, and inside both bays of the treatment plant prior to placement in one of the tanks. Drainage trenches/sumps are constructed within the North, Southeast, and East containment areas to contain and control liquid runoff. Drums are handled by carefully removing the tops or bungs and immediately emptying the contents with a vacuum truck or directly into the sludge boxes or treatment tanks, using a barrel forklift.

Treatment residues are managed as waste generated by the facilities and may be held in containers (such as roll-off boxes, drums or trailers) while analysis is completed. Post-treatment storage is sometimes necessary when the predetermined treatment regimen is not resulting in successful treatment to the LDR Standards. With each expansion of the land disposal restrictions, achieving the treatment standards and performing the laboratory analyses required to demonstrate treatment to the standards has become more complex and time consuming. While in temporary storage, additional treatability studies may be performed to determine how the LDR Standards might be met and during this period, the treatment tank may be productively employed to safely manage other wastes.

The disposal operations are supported and directed from the office/laboratory and waste receiving operations located near the entrance to the facility. These support operations assist to control and evaluate shipments received for conformance with pre-approval information regarding the specific properties, treatment, and documentation requirements.

3.0 OPERATIONAL PROCEDURES

3.1 Pre-Approval Procedures

3.1.1 Generator-Supplied Information

The pre-approval process is a waste evaluation procedure that takes place prior to receiving hazardous and non-hazardous wastes at the facility for storage or treatment. Michigan Disposal Waste Treatment Plant requires that the generator of a waste describe, in detail, the waste, its generating process, and both actual and potential constituents present.

Before the Michigan Disposal Waste Treatment Plant treats or stores any hazardous waste, Michigan Disposal Waste Treatment Plant will obtain a detailed chemical and physical analysis of a representative sample of the waste, where required. The analysis may include data developed under 40 Code of Federal Regulations (CFR) Part 261 and existing published or documented data on the hazardous waste or on hazardous waste generated from similar processes.

For the purposes of compliance with 40 CFR Part 268 or if the waste is not listed in Subpart D of 40 CFR Part 261 (R299.9213), the generators must determine whether their waste is identified in Subpart C of 40 CFR Part 261 (R299.9212) by either:

- Testing the waste according to the methods set forth in Subpart C (of 40 CFR Part 261) or according to an equivalent method approved by the Director of the MDNR; or

- Appling knowledge of the hazard characteristic in light of the materials or processes used.

A Generator Waste Characterization Report (GWCR) or equivalent form must be completed by the generator. The elements of the GWCR include:

- Generator name, address, and telephone number;
- USEPA ID Number;
- the fingerprint parameters described in Section 5.0 and Table 1;

- USEPA and/or Michigan Hazardous Waste Codes;
- a description of the generating process;
- identification of the LDR status of the waste;
- Part 121 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451); and
- the generator's signature.

Michigan Disposal Waste Treatment Plant will accept other forms of documentation of waste characterization as long as all pertinent information on the Michigan Disposal Waste Treatment Plant preprinted form is included. Preprinted forms are supplied to the generators by Michigan Disposal Waste Treatment Plant and are the preferred method of presentation of the waste information.

The GWCR, with supporting analytical data where required, forms the basis of information upon which the facility determines if the waste can be accepted for storage, treatment, and potential disposal at the Belleville, Michigan site. The analytical data, waste type, process description, waste chemical physical characteristics, or a representative sample (one pint, typically) provide Michigan Disposal Waste Treatment Plant with sufficient information to decide if the waste can be accepted or if additional data is required before a decision can be reached. Wastes from TSDF generators must be single waste types from single generating processes. If the generator does not provide sufficient information, the generator is contacted and requested to upgrade the information before the approval process will continue.

Wastes received at the Michigan Disposal Waste Treatment Plant are also reviewed with respect to the 40 CFR Part 268 Land Disposal Restriction (LDR) notifications and certifications provided by the generator. If discrepancies are noted in the LDR notifications, certifications, analytical data, or information provided in the GWCR, Michigan Disposal Waste Treatment Plant will contact the generator to resolve the discrepancies prior to acceptance of the waste at the facility.

Material Safety Data Sheets (MSDS), if appropriate, may also be submitted for review by Michigan Disposal Waste Treatment Plant as part of the information provided by the generator. The generator is responsible for determining if the waste is considered to be hazardous waste by Federal or State regulations and fully characterizing the waste.

3.1.2 Special Conditions

Exceptions for the requirement of a sample of waste for review and acceptance at the facility include the following waste types based on the facility management review of the waste characterization data:

- Articles, equipment, clothing (such as personal protective equipment (PPE)) contaminated with chemicals;
- Empty containers which once held waste, commercial chemical products, or chemicals (small tanks, drums, bags, boxes, liners, cans, pails, etc.). Containers are considered "empty" according to the criteria specified in R299.9207;
- Asbestos-containing waste from cleaning or demolition activities that is properly bagged/containerized;
- Spent activated carbon, ion-exchange resins, molecular sieves, filters/ cartridges;
- Hazardous contaminated debris and demolition wastes;
- Chemical-containing devices/articles, such as cathode ray tubes (CRTs), fluorescent lights, batteries;
- Discarded, off-specification, or out-dated commercial products. A MSDS will be provided or made available for review;
- Wastes from food or animal processing;
- Selected wastes from medical, veterinarian, taxidermy, or mortuary facilities; and
- Septage or sewer treatment plant sludge from domestic users.

For wastes from which no samples will be taken prior to disposal, a visual inspection will be performed to determine if free liquids are present. If free liquids are found, the customer will be contacted and informed that the free liquids must be removed and properly treated, if possible, or stabilized. If the customer does not authorize the steps needed to properly manage the free liquids, the waste will be rejected. Double contained asbestos waste will not be opened for visual inspection. However, during the pre-approval process, the generator must verify that the asbestos contains no free liquids and it is so stipulated on the approval.

3.1.3 Generator Waste Characterization Report Review

After the generator-supplied information is received by Michigan Disposal Waste Treatment Plant, the facility management, which may include the Laboratory Manager, Technical Manager, Approvals Group, or Site/Plant Manager or their designee, reviews the information and determines if additional information or analyses are required. Representative samples of waste provided by the generator, where required, are subjected to the fingerprint analysis (see Sections 4.0 and 5.0), as appropriate, except where noted in Section 3.1.2. Selected supplementary analyses may also be performed at the direction of the facility management based upon the available information provided by the generator, USEPA, or Michigan hazardous waste numbers and the facility operating requirements.

If, during the review, the facility management determines that the waste characteristics do not conform to the information provided on the GWCR, the generator or their representative is notified of the inconsistency. Upon resolution of the inconsistency, the pre-approval procedures continue.

If the inconsistency is not resolved, the waste will be rejected and not approved. The GWCR, the process generating the wastes, waste characteristics, and the regulatory requirements for treatment, storage, or disposal, are carefully reviewed. The evaluation and decision on whether a waste can be managed by the facility is based on:

- Description of the process generating the waste;
- Generator knowledge of the waste generating process;
- Description of the chemical and physical properties of the waste;
- Additional documentation supplied by the generator;
- Management methods available;
- Conditions or limitations of existing licenses and regulations;
- Capability to safely manage the waste;

- Results of any waste analyses, as appropriate;
- A photograph;
- A treatability study, as necessary; and
- Facility management's technical experience and judgment.

Samples of wastes provided by the generator may be temporarily retained by Michigan Disposal Waste Treatment Plant prior to returning to the generator or proper disposal.

3.1.4 Treatment, Storage, and Disposal Approval

When it is determined that a candidate waste stream can be safely handled at the facility in accordance with the operating license requirements, it is assigned a unique approval number. An approval letter is sent to the generator by the Customer Satisfaction Department, serving as notification that the waste may be shipped to the facility, that Michigan Disposal Waste Treatment Plant has the appropriate permit(s) for the waste, and that it will be accepted, provided the waste that arrives for storage or treatment is the same waste and with the same characteristics that have been evaluated and approved in the pre-shipment approval process. All approved files are maintained in the facility operating record and contain the information regarding classification of the waste including:

- A completed GWCR form (or equivalent information) based on generator knowledge.

Additional documentation may include:

- The appropriate laboratory analysis from the generator, Michigan Disposal Waste Treatment Plant laboratory, or Michigan Disposal Waste Treatment Plant subcontracted laboratory used for characterization and classification of the waste, as necessary;

- General correspondence regarding the waste between Michigan Disposal Waste Treatment Plant and the generator;

- Notes and additional information compiled by Michigan Disposal Waste Treatment Plant personnel from conversations with the generator and testing results of the sample supplied by the generator.

Sections 3.1.1 and 3.1.3 detail the testing procedures and criteria utilized by Michigan Disposal Waste Treatment Plant personnel to evaluate waste as part of the pre-shipment approval process.

Once the generator has received the approval to ship, the generator arranges for transportation and delivery to the facility by a properly-licensed waste hauler.

All hazardous wastes shipped to Michigan Disposal Waste Treatment Plant must be accompanied by a properly-completed and signed MDEQ manifest and a LDR notification and certification form. Each waste stream's approval number should be written in the "Additional Information" section of the manifest.

Hazardous Waste Management Act Rule 405 Wastes

Wastes that have been mixed, combined, or commingled by transporters authorized to engage in such activity by R299.9405 of the Act 451 administrative rules, are evaluated in the same manner as other waste streams.

The transporter is required to complete a GWCR, or equivalent, describing the properties of the mixed waste and backup documentation showing the nature of the individual waste constituting the mixture, including:

- Identity of the generator;
- Process that generated the waste; and
- Hazardous characteristics of the waste.

If the mixture, or any of the individual wastes included in the mixture, is subject to LDRs, all documentation appropriate to the specific restriction(s) must be included. The authorized Rule 405 transporter must provide Wayne Disposal Site #2 Hazardous Waste Landfill with a representative sample of the mixed waste for evaluation, according to this WAP.

If the mixed waste is acceptable for disposal, an approval number is assigned to the mixture and a letter is sent to the transporter authorizing shipment to the facility. The approval is valid only for the specific combination and proportion of wastes specified in the documentation provided by the transporter.

Upon arrival at the facility, the waste is sampled and evaluated in the same manner as any non-mixed waste stream.

3.1.5 Waste Approval Re-Evaluation

Michigan Disposal Waste Treatment Plant requires that the GWCR, supporting information, and documentation be updated whenever any one of the following occur:

- There has been a change in the process generating the waste;
- Inspection of a waste shipment reveals that the waste does not meet the description/classification of the current approval record for the waste; and
- One year has passed since the last approval of the waste.

3.2 Incoming Load Pre-Acceptance Procedures

The procedures for incoming wastes are designed to assure that loads received for treatment, storage, or disposal have been previously evaluated according to the pre-approval procedures, and that the waste actually received is representative and consistent with the information and samples provided by the generator for pre-approval.

3.2.1 Hazardous Waste Manifest Review

When a shipment of waste arrives at the facility, the following step-wise procedure is followed:

- The driver proceeds to the inbound scale where the weight and truck number are recorded on a Log Sheet. The driver then proceeds to the sampling station;

- The driver presents the manifest and any other shipping documents to the Michigan Disposal Waste Treatment Plant Manifest Agent in the waste receiving/laboratory building; and

- Michigan Disposal Waste Treatment Plant personnel examine the manifest and other shipping documents, for manifests discrepancies, completeness and to ensure that the shipment was intended for treatment, storage, or disposal at the Michigan Disposal Waste Treatment Plant or Wayne Disposal Site #2 Hazardous Waste Landfill.

3.2.2 Waste Inspection and Sampling

Michigan Disposal Waste Treatment Plant personnel sample the waste shipment, as described under "Sampling Methodologies" in Section 6.0.

The Manifest Agent then determines if the waste stream has been pre-approved by one of the following methods:

1. The waste stream approval number (usually entered by the generator or transporter on the manifest form) is entered into the facility waste stream database computer system. If the system finds the approval, it responds by displaying information regarding the waste stream on the computer display screen. The Manifest Agent proceeds to Step No. 5;

2. If the approval number is not written on any of the shipping documents, the Manifest Agent uses the database search features to scan the file for an approval matching the generator waste type and waste description shown on the manifest. If the approval is found, the Manifest Agent proceeds to Step 5;

3. If use of an approval number or database search does not locate approval information in the computer file, the Manifest Agent, or other assigned personnel, accesses the manual approval files to determine if the waste stream has been pre-approved. If the approval is found, the Manifest Agent proceeds to Step 5. If pre-approval documentation is not found after proceeding through Steps 1, 2, and 3, the Manifest Agent goes to Step 4;

4. If a thorough search of the computerized and manual records reveals that the waste stream has not been evaluated and approved through the pre-approval process, the load is not accepted unless the pre-approval process is fully completed; and

5. Upon determining that an approval had been issued for the waste shipment being processed, the Manifest Agent checks the computer or manual records for any notes or special handling instructions for the shipment. The sampler then visually examines the load, pulls a sample, submits the sample to the Michigan Disposal Waste Treatment Plant laboratory for testing, and initiates a Post-Inspection Form (PIF).

3.2.3 Treatment, Storage, and Disposal Evaluation and Approval

The Michigan Disposal Waste Treatment Plant laboratory personnel then conduct the analytical tests and required observations specified for the particular waste stream as described in Section 5.1. If the results of the pre-acceptance fingerprint testing and observations agree with the pre-approval screening data, the laboratory chemist approves the waste load for receipt. The laboratory staff then inputs the testing data into the computer database system. The laboratory assigns a treatment, storage, or disposal designation on a PIF. If the results fall outside the profiled range of variability, the procedures outlined in Section 3.2.4 are followed.

The Manifest Agent gives the waste load truck driver the PIF and a Waste Spotter then directs the driver to the designated treatment, storage, or disposal location.

After the truck has been unloaded, the driver is directed to the outbound scale. The driver returns the completed PIF to the Manifest Agent. The manifest information is completed using the computer system. The manifest is signed, dated, disassembled, and the driver given the "Transporter" copy. Remaining copies of the manifest are placed in a holding file for later distribution, according to the instructions on the manifest form.

3.2.4 Off-Specification and Rejected Load Procedures

Michigan Disposal Waste Treatment Plant will use the following criteria to determine if a discrepancy exists between the waste shipment approved for the facility and the incoming waste load:

- For containerized wastes (i.e., drums, bags, etc.) any variation in piece count;
- For bulk wastes, variations greater than 10-percent in weight; and

- If inspection or fingerprint analysis of the waste determines physical or chemical differences, such as waste type.

Discrepancies that do not fall within these criteria are considered to be "minor" and are not subject to a re-characterization review unless Michigan Disposal Waste Treatment Plant has reason to believe that the variation is a continuing deviation and that a particular waste stream indeed is different from the waste approved. Significant inconsistencies in waste type, as defined by the last criterion above, result in re-characterization if the inconsistency cannot be reconciled with the generator or Michigan Disposal Waste Treatment Plant has reason to believe that the waste composition has changed.
If the incoming load procedures conducted above reveal that the shipment does not meet the description and characteristics determined by the pre-approval process, the generator is contacted by a Customer Satisfaction Representative to resolve the problem. If the discrepancy is reconciled, the load may be approved. The details of the reconciliation are recorded and maintained in the operating record.

If the discrepancy is not resolved, the shipment is rejected and, the Manifest Agent enters the reason for rejection in the computerized database system and log book and writes the reason for rejection on the manifest. The manifest documents are returned to the driver.

The following section outlines the general manifesting procedures for the rejection of full or partial loads arriving at the facility that do not meet the acceptance criteria defined in this WAP:

- Michigan Disposal Waste Treatment Plant/Treatment, Storage, and Disposal Facility Responsibilities

  a. Totally Rejected Load
     1. Note reason for rejection in "Item 19" of the manifest, along with the date and signature;

     2. Do not sign "Item 20" of the manifest; and

     3. Remove TSDF copy and return remaining copies of the manifest to the transporter.

b. Partially Rejected Load

1. Permission of the generator may be obtained verbally, and must be documented to partially reject a load;

2. The reason for rejection, quantity rejected, and generator contact name granting permission must be referenced in "Item 19;"

3. "Item 13" is lined out with a single line and initialed and the new quantity inserted to reflect only the quantity accepted;

4. "Item 20" is completed; and

5. Distribute manifest copies, as per accepted loads.

- Transporter Responsibilities

a. Totally Rejected Load

1. If an alternate disposal facility is available, contact the generator to obtain permission, in writing, to designate a new facility;

2. If permission is obtained, alter the manifest, as follows:

   - "Item 9" and "Item 10"

     Simple line out and initial the originally-designated facility and replace with the new facility information; and

   - Note in "Item 19" that permission was granted by the generator, the generator's contact name, date, and transporter signature.

3. Transport to the newly-designated TSDF for acceptance

4. The TSDF will need to be provided with an additional manifest copy since the TSDF which originally rejected the load removed the TSDF copy;

5. If no alternative disposal facility is available, return the load to the generator and obtain the generator's signature and date in "Item 19," acknowledging the returned load; and

6. Remove transporter's copy of the manifest.

b. Partially Rejected Loads

1. If no alternate disposal facility is possible, return the load to the generator. Loads returned to the generator must be signed and dated by the generator in "Item 19," acknowledging receipt. The only copy of the manifest the transporter will have is the transporter copy;

2. If an alternate disposal facility is possible, contact the generator to obtain permission, in writing, to designate a new facility;

3. If permission is obtained, the transporter acting as an authorized contractor for the generator prepares a new manifest, as follows:

   - Indicate the more appropriate United States Department of Transportation (USDOT) description/waste code, if determined by the rejection;

   - "Item 13" indicates the quantity originally rejected;

   - The original manifest number and date of rejection is to be noted in "Item 19;"

   - The new TSDF information is to be completed;

   - The generator's name, authorizing the TSDF facility, is to be clearly printed in the "Generator" line and verified by having the driver sign on the "Generator" line. The date of the generator's approval must also be placed on the "Generator" line; and

   - The remainder of the manifest is to be completed, as appropriate, with the information supplied on the original manifest. The generator and MDNR first copy of the manifest is to be returned to the generator.

4. The generator has the option of providing a replacement manifest with an original generator signature. The replacement manifest must contact, in "Item 19," the original manifest number and the date of rejection. (It should be noted that the transporter copy for a partially rejected load is the shipping document only authorizing the return of the waste to the generator.)

- Generator's Responsibilities

  a. Totally Rejected Loads

1. Permission may be granted to the transporter to designate an alternate disposal facility;

2. Loads returned to the generator must be signed and dated by the generator in "Item 19," acknowledging receipt;

3. The transporter manifest copy is given to the transporter and the MDNR second copy is mailed to the MDNR; and

4. Returned rejected loads, when sent out for subsequent disposal, must have the original manifest number and the date of rejection noted in "Item 19" on the new manifest.

b. Partially Rejected Loads

1. Permission must be granted to the TSDF to accept/reject partial loads;

2. For a load returned to the generator:

   - The manifest returned to the generator must be signed and dated by the generator in "Item 19," acknowledging receipt; and

   - The transporter manifest copy is given to the transporter and the MDNR first and second copies are mailed to the MDNR.

3. There are two options to designate an alternate disposal facility:

- Option 1

  a. Provide a new manifest to the transporter for shipment of the load to the designated facility;

  b. Returned, rejected loads, when sent out for subsequent disposal, must have the original manifest number and the date of rejection noted in "Item 19" of the new manifest; and

  c. Follow normal manifest distribution.

Option 2

  a. Designate the transporter to prepare a new manifest with the information specified in the section "Transporter-Partially Rejected Load," (Section 2(c)); and

  b. The generator and MDNR first copy of the manifest is to be returned to the generator by the transporter. The MDNR first copy of the manifest must be mailed to the MDNR.

3.3 Process Control Procedures

Each movement of waste within the facility, during which significant changes in its characteristics may occur, may involve additional inspection or sampling and analysis to determine appropriate handling and management of the waste. However, the majority of the analyses needed for the treatment, storage, or disposal of the waste are performed during the preapproval process. These analyses are not repeated unless it is known or believed that the waste characteristics may have changed during storage or processing. The process operations at the facility, which may involve sampling and analysis, include the following:

- Storage in containers and tanks; and
- Treatment in tanks consisting of neutralization, deactivation, chemical reduction, chemical oxidation, and stabilization.

The sampling and analytical procedures required for each of the processes is described separately below.

3.3.1 Storage

Stored containerized liquid and solid wastes are segregated with respect to ignitability, reactivity, corrosivity, and compatibility. Liquid wastes, which are transferred from drums, portable tanks or tank trucks, may be transferred to storage tanks prior to subsequent treatment.

Prior to wastes being placed in any storage unit, the facility management will determine the compatibility of the waste with the storage unit materials of construction and with wastes already stored therein. The evaluation is based upon vendor/engineering data, materials of construction, and a knowledge of the waste and its characteristics from the GWCR. If such data are not available, compatibility testing will be performed prior to storage.

Container Storage

Stored, containerized wastes are segregated with respect to ignitability, corrosivity, reactivity, and compatibility. The following lists typical hazard classes for wastes in the North Container Storage Area, East Container Staging Area, Southeast Container Storage Area and the East and West Loading/Unloading Bays:

- Corrosive, acids;
- Corrosive, alkali;
- Ignitable, (flammables);
- Ignitable, (oxidizers);
- Reducing agents;
- Non-regulated/inerts; and
- Toxics (metals, chlorinated solvents, pesticides, etc.).

Based on the hazard assessment of the waste, the containerized waste is organized into segregated storage areas within the North Container Storage, Southeast Container Storage Area and East Container Staging Areas.

Tank Storage

Wastes to be stored in tanks will undergo the fingerprint analyses which includes a waste compatibility test. Additional testing is based on the targeted treatment or disposal requirements.

Liquid wastes, delivered in bulk form by tank trucks or decanted from drums or portable tanks, are placed in bulk storage tanks or directly into treatment/storage tanks prior to treatment. Prior to transferring any wastes into a storage tank, the compatibility of the waste, with the material already in the tank, will be determined by the liquid waste compatibility test. Following the preliminary screening, using the chemical compatibility test, specific storage and process compatibility will be determined. The parameters that will be used to determine compatibility area as follows:

- Layering/Stratification

  The general miscibility of the materials will be evaluated. If layering/ stratification would appear to create a treatment or material handling problem, the materials will not be combined;

- Gas Evolution

  Materials that, upon mixing, appear to liberate significant amounts of vapors, fumes, or mists, will not be combined;

- Heat Generation

  Materials that, upon mixing, would generate excessive amounts of heat will not be combined; and

- Adverse Reactions

  Materials that, upon mixing, result in the formation of a large amount of sludge, or solidify or gel may not be combined if this causes a removal or subsequent handling problem.

When a bulk shipment is to be unloaded into a tank, a representative sample will be collected from the tank into which the waste is to be unloaded. The sample will be evaluated for the compatibility characteristics listed above. If it is determined that the mixture is incompatible, the waste will not be pumped into that receiving tank. If the waste is determined to be incompatible with the tank materials of construction or with the tank contents, the procedure will be repeated, as needed, until a compatible tank is available. If no compatible tank is available, the load may be rejected and returned to the generator or transhipped off-site to another permitted TSDF.

3.3.2 Waste Bulking/Consolidation

Wastes that are bulked and consolidated in vertical tanks or roll-off boxes are subjected to the same compatibility and waste code evaluations as applied to wastes that are mixed in the treatment tanks.

3.3.3 Treatment Technologies

Chemical Stabilization

The Michigan Disposal Waste Treatment Plant treats wastes that require treatment to comply with the LDR treatment standards through chemical stabilization using a pozzolanic-type process incorporating CKD, lime, and other selective reagents. Certain wastes may require more than one type of treatment, including neutralization, deactivation, chemical oxidation, and/or chemical reduction using reagents such as lime, oxidizing or reducing agents, to convert selected waste constituents into a physical or chemical form that is less soluble, less hazardous and/or more suitable for subsequent stabilization.

Chemical Oxidation

Hazardous wastes containing organic constituents above the LDR levels are chemically oxidized at the MDWTP. The chemical oxidation process is described below and detailed in Figure 2. Chemical oxidation is also discussed as one of the Best Demonstrated Available Technologies (BDAT) for managing organic contaminated waste in 40 CFR 268.42 and Appendix VI.

Oxidation-reduction reactions are one of the basic chemical reactions discussed in all beginning chemistry texts. Oxidation is the process in which an atom or compound acquires electrons (the oxidizing agent or oxidant) and reduction is the process in which an atom or compound loses electrons (the reducing agent or reductant). The two processes always occur simultaneously with one compound acting as the oxidant and the other the reductant.

For the treatment of hazardous organic containing waste, MDWTP typically uses an 18% sodium hypochlorite solution as the oxidizing agent[1]. In the oxidation process, electrons are stripped from the organic molecules to the extent that the carbon to carbon bonds are broken and carbon dioxide, sodium chloride and water are formed. Organic compounds are destroyed in this mildly exothermic reaction. MDWTP allows at least two hours for the chemical oxidation reaction to run to completion. During this time, the slurried batch is mixed with an excavator.

The amount of oxidant used in the treatment is determined by the Treatment Chemist and is a function of 1) the concentration of all organics in the waste, 2) the treatability study run on the waste[2], 3) the Treatment Chemist's previous experience with the waste, and 4) the quantity required to create a wastewater slurry. Batches treated by chemical oxidation must be solidified by chemical stabilization before landfilling and must also be determined to pass the LDR standards as described in Section 3.3.5.

[1] While sodium hypochlorite is the predominant oxidant used by MDWTP, MDWTP may occasionally use other oxidizing agents, including but not limited to hydrogen peroxide and potassium permanganate.

[2] Treatability studies are typically triggered by an organic constituent concentration ten times its regulatory level (for D012 - D043) or ten times the UTS level for underlying hazardous constituents.

Treatability Studies

The pre-approval analyses for specific wastes to be treated to meet the applicable LDR treatment standard(s) can include fingerprint analyses, supplementary analysis, and, in certain cases, a bench-scale treatability study, as specified in Appendix B. This study is performed to verify acceptability with the Michigan Disposal Waste Treatment Plant treatment process and the treatment "recipe" required to meet the applicable treatment standards. The treated waste samples are analyzed for the specific characteristics and constituents associated with the USEPA hazardous waste numbers using the Toxicity Characteristic Leaching Procedure (TCLP) and/or specific constituent analyses (i.e., Constituent Concentration in Waste Extract (CCWE) or Constituent Concentration in Waste (CCW), respectively).

These pre-approval treatability studies are used to adjust the treatment processes for specific waste types and batches. Example treatment approaches for typical hazardous waste types are presented on Figures 1 through 4.

These treatment operations may combine several wastes or shipments from various generators to facilitate operational efficiency and utilization of available processing capacity. Batch treatment of multiple wastes and/or shipments will be based on chemical compatibility, USEPA hazardous waste numbers, and treatment requirements. Additional specific information regarding the treatment processes are defined in the Michigan Disposal Waste Treatment Plant operating license.

Post-treatment analyses, which includes the TCLP, paint filter test and, where applicable, specific constituent (i.e., supplementary) analyses are performed on each treatment batch of hazardous waste prior to landfill disposal. This post-treatment analysis is used to demonstrate that the treatment residue meets the LDR standards. Example treatment processes and post-treatment parameters for typical waste received are presented in Table 1.

Waste Not Subject to the Land Disposal Restrictions

The Michigan Disposal Waste Treatment Plant stabilization process will also be utilized to treat wastes not subject to the LDRs, to solidify free liquids and render the waste more suitable for handling and landfill disposal.

The post-treatment analyses will include a visual observation, to ensure no free liquid is present. A paint filter test is performed on selected loads when required by visual inspection.

3.3.4 Procedures for Ignitable, Reactive, and Incompatible Wastes

Michigan Disposal Waste Treatment Plant utilizes waste characterization data provided by the generator as well as analytical screening and testing procedures to obtain information regarding waste ignitability, reactivity, or incompatibility prior to treatment, storage, or disposal. Michigan Disposal Waste Treatment Plant also evaluates this information relative to waste compatibility with the facility equipment and treatment processes.

Michigan Disposal Waste Treatment Plant does not accept ignitable wastes having a flashpoint less than 90°F. Ignitability data for wastes is obtained through process knowledge and/or performing flashpoint or ignitability screening tests, as described in Section 5.1.

Michigan Disposal Waste Treatment Plant does not accept wastes exhibiting the characteristic of reactivity. In addition, Michigan Disposal Waste Treatment Plant evaluates potential reactivity characteristics through the use of process knowledge and for potential cyanide (CN) or sulfide-containing wastes, through analysis for total, amenable and reactive CN, and reactive sulfide. To evaluate the potential for incompatibility of wastes with the facility equipment, treatment processes, or with other wastes upon mixing/blending, Michigan Disposal Waste Treatment Plant uses process knowledge, and compatibility testing described in Section 3.3.1. If the review of the waste characterization data and/or compatibility testing indicates a potential for incompatibility and unacceptability at the Michigan Disposal Waste Treatment Plant, the wastes will be either rejected and returned to the generator or transferred to another permitted TSDF capable of managing the waste in accordance with the procedure outlined in Section 3.2.4.

3.3.5 Land Disposal Restriction Requirements

Wastes Meeting the Land Disposal Restriction Standards

Wastes that are certified, through analysis, to meet the LDR treatment standards specified in 40 CFR 268 may be directly landfilled at the Wayne Disposal Site #2 Hazardous Waste Landfill or another appropriately authorized facility. The LDR certification and notification, and analytical documentation will be provided for each waste disposed of in the Wayne Disposal Site #2 Hazardous Waste Landfill or shipped to another off-site TSDFs and maintained in the facility operating records pursuant to 40 CFR 268.7(c) and in accordance with 40 CFR 268.7(b)(4) and (b)(5).

Wastes Requiring Treatment

Wastes requiring deactivation, chemical oxidation, chemical reduction, and/or stabilization will be treated in batch operations. Each batch may contain multiple USEPA hazardous waste numbers and treatment standards.

The treated batches will be held in the treatment/storage tanks, covered roll-off boxes, or other similar bulk containers while testing is performed prior to disposal.

Treatment tanks and equipment are decontaminated, as necessary, to facilitate treatment of different waste codes in the treatment tanks.

Treatment residues will be sampled and analyzed to determine whether the batch meets the applicable treatment standards defined in 40 CFR 268 Part D.

Treatment residues, resulting from the treatment operations that exceed the applicable LDR treatment standards, will be retreated on-site until the LDR standards are achieved or, as an option, sent off-site for further treatment to meet the LDR standards at another TSDF. Any off-site shipments will be accompanied by the LDR notification, a manifest, and data for the waste for the off-site TSDF in accordance with 40 CFR 268.7(a)(1).

Treatment residues, that are determined, through analyses, to meet the applicable LDR treatment standards, will be landfilled in theWayne Disposal Site #2 Hazardous Waste Landfill or another appropriately authorized facility. The LDR certification and notification, and analytical documentation will be provided for each waste disposed of in the Wayne Disposal Site #2 Hazardous Waste Landfill and maintained in the facility operating records in accordance with 40 CFR 268.7(b)(4) and (b)(5). These documents would also be provided with any shipments to other off-site TSDFs.

Characteristic Wastes

Characteristic wastes, which are batch-treated separately from listed wastes, may be disposed of in a solid waste/Subtitle D landfill, such as The Environmental Quality Company (EQ) Canton facility, if it is determined that, after treatment, the LDR treatment standards have been achieved and the treatment residue no longer exhibits the characteristics of hazardous waste and all applicable underlying hazardous constituents (UHCs), in the case of D001, D002, and D012 - D043, have been treated in accordance with the Universal Treatment Standards at 40 CFR 268.48 .

Hazardous Debris

Hazardous debris (>60mm) must be treated prior to land disposal, unless the debris is no longer contaminated with hazardous waste or the debris is treated to the waste-specific treatment standards specified in 40 CFR 268.45 using technologies identified in Table 1 of 268.45. MDWTP anticipates receiving hazardous debris that may be contaminated with any code or codes identified in Appendix A in Section A-1 or in the WAP.

Characteristic ignitable or corrosive hazardous debris will be deactivated at Michigan Disposal Waste Treatment Plant during the microencapsulation process prior to landfill disposal. The treatment standards identified in Table 1 of 268.45 must be achieved for each type of debris contained in a mixture of debris types. If immobilization, such as microencapsulation or macroencapsulation, is used in a treatment train, it will be the last treatment technology applied. This requirement also will apply to debris contaminated with two or more contaminants subject to treatment. Hazardous debris will be treated for each contaminant, subject to treatment as specified by 268.45(b) for toxicity characteristic debris and debris contaminated with listed wastes. CN reactive debris will not be accepted by Michigan Disposal Waste Treatment Plant.

Michigan Disposal Waste Treatment Plant uses the micro and macroencapsulation immobilization technologies listed in Table 1 of 268.45 to achieve the performance standard of reduced leachability of the hazardous contaminants, in the case of microencapsulation, and completely encapsulates debris with a material(s) that is resistant to degradation by the debris and its contaminants and the material into which it may come into contact after placement (leachate, other waste, microbes), in the case of macroencapsulation.

Treated hazardous debris will be managed as specified in 268.45(c). When treating debris in accordance with the alternative treatment standars for debris, the MDWTP uses only the immobilization technologies of micro and macroencapsulation. Hazardous debris contaminated with listed or characteristic waste that is treated by micro or macroencapsulation at the MDWTP are properly disposed in licensed Subtitle C landfills and are accompanied by an LDR notification and certification form in accordance with 40 CFR 268. 7(b)(5). Treatment of debris using one of the technology specific immobilization treatment standards at 268.45, Table 1, constitutes compliance with the land disposal restriction standards and no testing after treatment is required prior to disposal.

Description Of The Macroencapsulation Unit

The macroencapsulation unit is made of approximately one inch thick polyethylene using an injection molding process to creat a rigid, one-piece "tub" that fits within a roll-off or is self supporting. The macroencapsulation units can be manufactured in any size but are most commonly manufactured to fit within a 20 yard roll-off. To seal the unit, a sheet of the same polyethylene in approximately the same thickness is screwed onto the lip of the tub using approximately 120 self-tapping screws. Screwing the down the lid provides a water-tight seal that may be augmented with caulking or glue.

Debris placed within the macroencapsulation units are jacketed within the polyethylene in an inert, extraordinarily durable, water tight material that will substantially reduce surface exposure to potential leaching media. The inert polyethylene material will completely encapsulate the debris and is resistant to degradation by the debris and debris contaminants managed by Michigan Disposal and the wastes, leachate, or microbes with which it will contact once landfilled in a licensed hazardous waste cell.

Description of The Macroencapsulation Process

Macroencapsulation will be performed as follows:

1) Debris will be placed into one of the treatment tanks (tanks 7 - 10) or directly into a macroencapsulation unit.

2) In the treatment tank, the debris is mixed, as needed, with an inert, finely divided material to fill the void spaces when encapsulated and to provide cushioning material. The inert filler includes cement kiln dust, sand, solidified non-hazardous waste, waste treated to the land disposal restriction standards, or other non-biodegradable sorbent or fixation media. Fill material is also added directly to the macroencapsulation units.

3) The debris is lifted from the tank with a backhoe and placed into a macroencapsulation unit or is placed directly into the unit. As with dump trailers and dump trucks currently loaded with treated waste within the treatment plant, the macroencapsulation units is also loaded within the plant.

4) The lid is screwed into place on the macroencapsulation unit.

5) Macroencapsulation approvals will specify "special burial" in the licensed hazardous waste cell. The special burial designation will ensure that the macroencapsulation units are carefully placed in the cell to ensure that they are not ruptured during placement or after placement.

Capacity

Macroencapsulation treatment capacity is a function of available tank space. Macroencapsulation of hazardous debris will be counted against the permitted treatment capacity of the MDWTP on a daily basis as are all other wastes treated in the tanks. All permitted tank treatment methods, including micro and macroencapsulation, are performed within the state license and federal permit capacity limitations as stipulated in Section A-1 of this application.

4.0 WASTE ANALYSIS PARAMETERS

4.1 Criteria for Parameter Selection and Rationale

The parameters selected for analysis of wastes managed by the facility and the rationale for their selection is based on the physical/chemical characteristics of the waste, the regulatory and operating license requirements for treatment, storage, or disposal of the waste, the information and analytical data supplied to Michigan Disposal Waste Treatment Plant by the waste generator and the process control data necessary to manage the waste by the facility's treatment and storage operations.

The waste analysis used by the facility to manage wastes for treatment, storage, or disposal include:

- Fingerprint Analyses

  These analyses may be performed on generator samples for pre-approval of the waste for management at the facility and are also performed on samples of each waste load prior to load acceptance. These analyses may also be performed if the generator or Michigan Disposal Waste Treatment Plant determines that there is a change in the process generating the waste. The fingerprint analyses include screening procedures to provide data regarding the general physical and chemical characteristics of the waste;

- Supplementary Analyses

  These analyses are generally waste-specific based on the physical/chemical characteristics of the waste, the USEPA or Michigan hazardous waste number (determined by the generator), the process generating the waste, treatment, storage, or disposal process control requirements, and regulatory treatment requirements (such as the LDR or facility operating license conditions).

  These analyses may be performed to supplement the generator-supplied information regarding the waste and the fingerprint analyses and include standard analytical USEPA and/or American Society for Testing and Materials (ASTM) methods.

Waste characterization data is provided to Michigan Disposal Waste Treatment Plant by the generator using the GWCR, as described in Section 3.1.1. The generator data and analyses provide the facility with the information needed to properly manage a waste and ensure that the waste shipment received at the facility matches the identity and characteristics of the waste approved by Michigan Disposal Waste Treatment Plant and designated on the accompanying Hazardous Waste Manifest (manifest) or shipping papers.

The fingerprint and supplementary analytical parameters and rationale for their selection is provided in Appendix B.

4.2 Analytical Parameters and Testing Frequency

4.2.1 Pre-Approval

The analytical parameters used for pre-approval of wastes for management at the facility may include the fingerprint analyses, except where a test may be inappropriate, as described in Appendix B. Supplementary analyses may also be performed for pre-approval of waste, usually based on the USEPA or Michigan hazardous waste numbers, associated waste characteristics and/or constituents, and regulatory treatment requirements.

The analytical parameters that may be performed for pre-approval of waste are presented in Table 2. These analyses may be repeated for pre-approval if the generator or Michigan Disposal Waste Treatment Plant has information that the process generating the waste has changed or inspection of a waste reveals that the waste does not meet the description/classification of the current approval record for the waste.

4.2.2 Receiving

The analytical parameters used for pre-acceptance testing each incoming shipment of wastes arriving at the facility include the fingerprint analyses for all wastes (except where a test may be inappropriate, e.g., pH or closed cup flash point testing on concrete), and selected supplementary analyses for specific cases. As previously indicated, the supplementary analyses performed is a function of the designated USEPA or Michigan hazardous waste numbers and waste characteristics. The analytical parameters performed for receiving incoming shipments of waste are presented in Table 2 except as noted in Section 3.1.2.

4.2.3 Process Control

The analytical parameters that are used for process control may include fingerprint analyses and/or supplementary analyses. These parameters are defined by each process currently utilized at the Michigan Disposal Waste Treatment Plant and are summarized in Table 2.

4.2.4 Post-Treatment

The analytical parameters that are used for post-treatment may include fingerprint and/or supplementary analyses. These parameters are defined by each process currently utilized at Michigan Disposal Waste Treatment Plant and are summarized in Tables 1 and 2. Post treatment testing will not be performed on micro or macroencapsulated debris.

5.0 ANALYTICAL TEST METHODOLOGIES

5.1 "Fingerprint" Parameters and Methods

The "fingerprint" parameters include screening procedures and test methods utilized by Michigan Disposal Waste Treatment Plant that have been developed within the waste management industry to provide a general identification of specific physical and chemical characteristics of wastes handled by the facility. These parameters are presented in Table 2 and are described in Appendix B.

5.2 Supplementary Parameters and Methods

The "supplementary" parameters include commonly-accepted standard analytical methods developed by the USEPA, ASTM, or as a standard industry procedure. These parameters, presented in Table 1 and described in Appendix B, are used, as necessary, to supplement the fingerprint parameters for additional characterization of the waste and determination of specific properties and/or constituents to ensure proper treatment, storage, or disposal in accordance with current regulations and the facility operating license.

Both the fingerprint analyses and supplementary analyses are used to ensure that restricted wastes are not accepted by the facility and that incompatible wastes are not commingled. Specific supplementary analyses may be used for various waste matrices.

5.3 Michigan Disposal Waste Treatment Plant Laboratory Capabilities

Michigan Disposal Waste Treatment Plant maintains analytical laboratory facilities at the Belleville, Michigan site for the purpose of conducting the analytical procedures associated with this WAP to evaluate, approve, and monitor the characteristics of waste received from their customers and managed by the facility. Michigan Disposal Waste Treatment Plant utilizes modern analytical equipment and facilities in the analysis of waste samples. Michigan Disposal Waste Treatment Plant also employs trained chemists (individuals that possess educational and/or work experience qualifications necessary to be proficient in performing waste analysis) who utilize standardized procedures for maintaining quality assurance (QA) and QC requirements associated with the analytical procedures.

The Michigan Disposal Waste Treatment Plant laboratories are currently capable of performing the fingerprint analyses, as described in this WAP, as well as standard USEPA and ASTM methodologies for analyses of a variety of parameters in the following general categories:

- Water quality parameters/inorganics, non-metallics;
- RCRA hazardous waste characteristics;
- Organic Constituents:
  a. VOCs;
  b. Semi-VOCs;
  c. Pesticides, herbicides; and
  d. PCBs.
- Metals.

The laboratories' capabilities may be subject to change as necessitated by regulations, operating requirements, or advances in analytical methodologies and equipment.

5.4 Quality Control/Quality Assurance

The Michigan Disposal Waste Treatment Plant laboratories maintain a Laboratory Quality Assurance Program (LQAP) to insure the accuracy, precision, and reliability of the laboratory results produced for Michigan Disposal Waste Treatment Plant customers, or at the request of regulatory or accrediting bodies. Management, administrative, statistical, investigative, preventive, and corrective techniques are employed to maximize the reliability of the analytical data.

This LQAP establishes the policies and procedures regarding:

- Glassware preparation;
- Reagents, solvents, gases, and standards;
- Samples and sampling;
- Instrument calibration procedures;
- Analytical procedures;
- QC checks;
- Data handling and reporting;
- Preventative maintenance;
- Corrective actions;
- Orientation and training;
- Performance and system audits; and
- Subcontracted laboratories.

Michigan Disposal Waste Treatment Plant uses standard analytical procedures developed by the USEPA and ASTM and referenced in Appendix B. Additional fingerprint procedures utilized by Michigan Disposal Waste Treatment Plant and the waste management industry, are also presented in Appendix B. The laboratory equipment maintained at the facility is calibrated within acceptable limits, according to USEPA and ASTM or the manufacturer specifications prior to use. Laboratory instruments are periodically inspected, maintained, and serviced according to manufacturer specifications. Reference standards and QC samples (i.e., checks, spikes, laboratory blanks, duplicates, splits) are used to determine the accuracy and precision of procedures, instruments, and operators. Quality assurance/quality control (QA/QC) data is recorded with the test results by the laboratory staff. Records of all pertinent laboratory calibration, analytical, and QC activities and data are maintained in the laboratory files.

The laboratory QA/QC procedures used by the facility assist in assuring that the data obtained are precise, accurate, and representative of the waste stream analyzed.

The analytical QA/QC procedures follow the method-specific requirements specified in "Test Methods for Evaluating Solid Waste: Physical Chemical Methods," SW-846, Third Edition, November 1986 (USEPA, SW-846) (or most recently published and approved edition), where applicable.

Michigan Disposal Waste Treatment Plant laboratory QA/QC policies are found in the QA/QC manual which is maintained at the facility. The QA/QC program is modeled after the International Standards Organizations Guide 25.

6.0 SAMPLING METHODOLOGIES

6.1 General Methodologies

Each incoming shipment of non-hazardous and hazardous waste is inspected and sampled to ensure that the waste received for storage or treatment at Michigan Disposal Waste Treatment Plant matches the waste reviewed during the pre-approval process. The sampling techniques described herein are performed in general accordance with the techniques outlined in USEPA's SW-846.

6.2 Sampling Program and Equipment

The selection of the sample collection device depends on the type of sample, the sample container, and the sampling location. In general, the methodologies used for specific materials correspond to those referenced in USEPA SW-846. The person sampling is trained in the selection and use of the sampling device and is thoroughly familiar with the sampling requirements.

Sampling equipment is constructed of non-reactive materials such as glass, polyvinyl chloride (PVC) plastic, aluminum, or stainless steel. Care is taken in the selection of the sampler to prevent cross-contamination of the sample and to ensure compatibility of materials.

Sampling is performed for each waste in a manner that ensures the samples are as representative as possible under the conditions of the sampling event.

All bulk and containerized hazardous waste loads will be sampled prior to receipt at the facility, except for waste types such as:

- Empty drums;
- Debris (as defined in 40 CFR 268);
- Tanks (whole or cut);
- Equipment, machinery, pumps, piping, etc.; and
- As specified in Section 3.1.2.

Container samples from the same waste stream (one approval number) may be composited prior to analysis, provided that individual samples are not grossly dissimilar in physical appearance.

All samples must be appropriately labeled. The following information is included on the label:

- Bulk Loads
  a. Transporter Name; and
  b. Truck Number
- Drums
  a. Waste Code
  b. Manifest Number
  c. Approval Number; and
  d. Drum Number.
- Tank ID (Process or Facility Samples)
  Batch Number
  Date
  Time
  Sampler

Observations or unusual conditions during sampling are noted as comments on the label. No chain-of-custody (COC) form is employed within the plant, as the samples are relinquished directly to the laboratory. A COC will accompany any sample being sent to a contract laboratory or another Michigan Disposal Waste Treatment Plant. Sampling and analytical information is retained as part of the facility's operating record.

6.3 Specific Sampling Procedures

6.3.1 Drums/Boxes

Each incoming stream of waste in drums or boxes (non-hazardous/hazardous) will be sampled and, at a minimum, have the fingerprint parameters performed on the sample. Samples of each bulk load that is placed in a treatment tank will be retained in the lab until it is removed from the tank. Each hazardous waste stream will be sampled at 20-percent of the total number of containers. The selection of drums to be sampled will be performed in general accordance with the simple random sampling technique outlined in USEPA, SW-846, an example of which is provided as Table 3. The separate samples collected will be composited by waste stream in the Michigan Disposal Waste Treatment Plant laboratory to form a single sample for analysis. Individual samples that are visually dissimilar will not be composited. Each hazardous waste stream from a TSDF source will be sampled at a 100-percent frequency. Samples collected from each waste stream will be composited and will have fingerprint analyses performed upon them.

Samples will be collected from drums or boxes by utilizing the sampling equipment recommended by the USEPA in USEPA, SW-846 and Section 6.2. Michigan Disposal Waste Treatment Plant personnel will usually utilize drum thieves or coliwasas to sample aqueous waste and trier or scoops to sample granular or solid, sludge matrices.

6.3.2 Roll-Off Boxes/Bulk Loads of Solids and Liquids

Each incoming stream of waste received at the Michigan Disposal Waste Treatment Plant in a bulk form (i.e., roll-off box, or dump trailer) will have a sample collected and analyzed for the fingerprint parameters, at a minimum. Bulk solid samples will be collected from inside the container. A clean carbon steel, stainless steel auger or disposable PVC trier will be utilized to collect the samples. The samples will be composited to form a single sample for analysis. Bulk aqueous tankers will be sampled utilizing a thief or coliwasa-type sampler to collect the sample from varying depths in the tank for analysis.

6.3.3 Treatment/Storage Tanks

Treated, stabilized waste will be sampled from the Michigan Disposal Waste Treatment Plant treatment tanks in order to verify that the waste meets LDR prior to land disposal of the waste with the exception of microencapsulated and macroencapsulated debris. Samples of treated, stabilized waste will be collected from random vertical and horizontal locations.

The samples will be collected by using a backhoe to reach the selected sampling points and then collecting a sample from the backhoe bucket with a disposable scoop or cup. The samples will be composited to form a single sample for analysis by the laboratory.

Transhipped Wastes

Wastes to be transhipped off-site to other permitted TSDFs will be sampled and analyzed as required by the receiving facility's WAP.

Waste Materials Utilized as Treatment Reagents

Michigan Disposal Waste Treatment Plant will obtain a chemical assay of waste materials such as lime or cement kiln dust (CKD) from the material source/vendor for evaluation prior to approval by Michigan Disposal Waste Treatment Plant for use at the facility.

6.4 Equipment Decontamination

All equipment used in the collection of waste samples will either be disposable (i.e., scoops or drum thieves) or sufficiently cleaned to remove gross contamination prior to sampling by conventional means such as shaking, scraping, or rinsing with water.

6.5 Sample Preservation and Storage

- Hazardous waste samples are generally not amenable to preservation;
- Samples for volatile organics are refrigerated at 4-degrees Celsius (°C) until analyzed and must be analyzed within seven days;
- Samples for semi-volatiles, if necessary, must be extracted within seven days and analyzed within 40 days;
- Aqueous samples for total organic carbon (TOC) analyses are refrigerated at 4°C until analysis and aliquots for metals analysis are preserved by the addition of HNO_3 to pH <2; and
- Samples are stored in the laboratory refrigeration unit.

6.6 Quality Control/Quality Assurance

The following QA/QC procedure for the Michigan Disposal Waste Treatment Plant is being provided as required by 40 CFR 270.30(e) and in accordance with USEPA SW-846 (or most recent USEPA promulgated and approved edition).

Michigan Disposal Waste Treatment Plant sampling QA/QC policies are found in the QA/QC manual, which is maintained at the facility.

6.7 Health and Safety Protocols

During sampling and laboratory-related activities, Michigan Disposal Waste Treatment Plant personnel will utilize precaution to reduce the potential for incidents, injuries, or accidents. Michigan Disposal Waste Treatment Plant has established a Hazardous Waste Operations (HAZWOPER) Facility Health and Safety Plan (HSP) in accordance with Michigan Occupational Safety and Health Administration (MIOSHA) Act 154 and R325.52129 for operations at TSDFs.

Michigan Disposal Waste Treatment Plant personnel are HAZWOPER trained in accordance with the provisions of R325.52129(8) and follow health and safety (H&S) requirements, including PPE requirements specified in the facilities' standard operating procedures (SOPs).

REFERENCES

American Society for Testing and Materials, "Annual Book of ASTM Standards."

United States Environmental Protection Agency, SW-846, Third Edition, November 1986 "Test Methods for Evaluating Solid Waste: Physical Chemical Methods."

United States Environmental Protection Agency, Office of Solid Waste and Emergency Response, April 1994, "Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste;" A Guidance Manual.

Note: For Industry Standards see the QA/QC Program Manual.

TABLE 1
MICHIGAN DISPOSAL WASTE TREATMENT PLANT PROCESS LOGIC
THE ENVIRONMENTAL QUALITY COMPANY
BELLEVILLE, MICHIGAN

TARGET CONSTITUENTS	TYPICAL WASTE CODES	TREATMENT TRAIN	POST-TREATMENT PARAMETERS
Arsenic	D004	STABL	TCLP Metals
Barium	D005	STABL	TCLP Metals
Cadmium	D006	STABL	TCLP Metals
Chromium (Hexavalent)	D007 (Cr+6)	CHRED fb STABL	TCLP Metals
Lead	D008	STABL	TCLP Metals
Mercury	D009	STABL	TCLP Metals
Selenium	D010	CHRED fb STABL	TCLP Metals
Silver	D011	STABL	TCLP Metals
Nickel	F006-F009 F011, F012	STABL	TCLP Metals
Low {CN-} with Metals and Cr+6	F006, F007 F008, F009 F011, F012 F019	CHOXD fb CHRED fb STABL	T-CN A-CN TCLP Metals
Low {CN-} No Metals/ Organics	F010	CHOXD	T-CN A-CN TCLP Metals
Metals, Zinc	K061	STABL	TCLP Metals
Ignitable Low TOC Subcategory <10% TOX	D001	DEACT/CHOXD fb STABL	Ignitability
Oxidizers (No Strong Oxidizers)	D001	DEACT/CHRED fb STABL	Ignitability

NOTES:

A-CN = Amenable Cyanide
CHOXD = Chemical Oxidation
CHRED = Chemical Reduction
DEACT = Deactivation
fb = followed by
MICRO = Microencapsulation
NEUT = Neutralization

STABL = Stabilization
TCLP = Toxicity Characteristic Leaching Procedure
T-CN = Total Cyanide
< = Less than
> = Greater than
{ } = Concentration

Verify treatment process conditions, sequence, reagents and dosage rates with Treatment Chemist prior to processing any wastes.

Refer to batch sheet. All hazardous wastes must meet Land Disposal Restriction treatment standards for local disposal. The post-treatment analyses will also include a visual observation, to ensure no free liquid is present.

TABLE 1
MICHIGAN DISPOSAL WASTE TREATMENT PLANT PROCESS LOGIC
THE ENVIRONMENTAL QUALITY COMPANY
BELLEVILLE, MICHIGAN

TARGET CONSTITUENTS	TYPICAL WASTE CODES	TREATMENT TRAIN	POST-TREATMENT PARAMETERS
Corrosives	D002	DEACT/NEUT fb STABL	pH*
Corrosives with Metals, Organics	D002/ICR	DEACT/NEUT fb CHOXD fb CHRED fb STABL	pH* TCLP Metals/ Organics
Low [ ] Organics	F001-F005	CHOXD fb STABL	TCLP Organics
Low [ ] Organics	D018-D043	CHOXD fb STABL	TCLP Organics
Hazardous Waste Debris	All Codes; and Contaminants Subject to Treatment	MICRO	NA
Hazardous Waste Debris	All Codes; and Contaminants Subject to Treatment	MACRO	NA
Non-Hazardous Waste		STABL for Free Liquids	Visual Observation

NOTES:

A-CN = Amenable Cyanide
CHOXD = Chemical Oxidation
CHRED = Chemical Reduction
DEACT = Deactivation
fb = followed by
MICRO = Microencapsulation
MACRO = Macroencapsulation

STABL = Stabilization
TCLP = Toxicity Characteristic Leaching Procedure
T-CN = Total Cyanide
< = Less than
> = Greater than
[ ] = Concentration
NEUT = Neutralization

Verify treatment process conditions, sequence, reagents and dosage rates with Treatment Chemist prior to processing any wastes.

Refer to batch sheet. All hazardous wastes must meet Land Disposal Restriction treatment standards for local disposal. The post-treatment analyses will also include a visual observation, to ensure no free liquid is present.

*For solids, method SW846 9045B is used.

TABLE 2
ANALYTICAL PARAMETERS AND TESTING STAGES
MICHIGAN DISPOSAL WASTE TREATMENT PLANT
BELLEVILLE, MICHIGAN

PARAMETER	ANALYTICAL METHOD (1)	PRE-APPROVAL	PRE-ACCEPTANCE	PROCESS CONTROL	POST-TREATMEN
Fingerprint Analysis					
- Color	See Appendix B	X	X		
- Consistency	See Appendix B	X	X		
- Odor Inspection	See Appendix B	X	X		
- pH	9040,9041A,9045A,9045B	X	X	X	X
- Reactivity	See Appendix B	X	X		
- Ignitability	See Appendix B	X	X		X
- Cyanide Spot Test	See Appendix B	X	X		
- Sulfide Spot Test	See Appendix B	X	X		
- Radiation Screen	See Appendix B	X	X		
- Oxidizer Screen	See Appendix B	X	X	X	
- Compatibility Test (A)	See Appendix B		X		
- Compatibility Test (B)	See Appendix B	X			
Supplementary Analysis					
- Total Cyanide	9010	X		X	X
- Amenable Cyanide	9010	X		X	X
- Reactive Cyanide	SW-846 SEC.7.3.3.2	X			
- Reactive Sulfide	SW-846 SEC.7.3.4.1	X			
- Volatile Organics	8010; 8015; 8020 or 8240	X		X	
- 40 CFR 261 Appendix VII Constituents:		X		X	X
- Total Organics	8010, 8015, 8020 or				
- Total Inorganics	8240; 8040, 8090, or				
- Total Metals	8270; 6000/7000; 9010				
- Hexavalent Chromium	7196; See Appendix B	X		X	
- Total Organic Carbon	9060	X			
- Paint Filter Test	9095				X (3)
- TCLP	1311	X			X
- Total Organic Halides	9020	X			
- PCBs (Oily Wastes Only)	8080	X			
- Treatability Study	See Appendix B	X			
- Acidity	2310 (2)	X		X	
- Flash Point	ASTM D-3278-78 or ASTM D-93-79	X			

NOTES:

(1) = Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA SW-846, 3rd Edition.

(2) = American Public Health Association, 17th Edition, 1989 or most recent edition, "Standard Methods for the Examination of Waste and Wastewater."

(3) = Visual inspection to ensure no free liquids are present prior to disposal is performed on each load. Paint filter tests are performed on selected loads when required by visual inspection.

ASTM = American Society for Testing and Materials

PCBs = Polychlorinated Biphenyls

TCLP = Toxicity Characteristic Leaching Procedure

X = Fingerprint analysis is performed on all wastes for pre-acceptance.

Fingerprint analysis and supplementary analysis are performed, when required, based upon waste type, hazardous waste numbers, and data provided by the generator.

TABLE 3
RANDOM NUMBERS FOR CONTAINER SAMPLING

03	47	43	73	86	36	96	47	36	61	46	98	63	71	62
97	74	24	67	62	42	81	14	57	20	42	53	32	37	32
16	76	62	27	66	56	50	26	71	07	32	90	79	78	53
12	56	85	99	26	96	96	68	27	31	05	03	72	93	15
55	59	56	35	64	38	54	82	46	22	31	62	43	09	90
16	22	77	94	39	49	54	43	54	82	17	37	93	23	78
84	42	17	53	31	57	24	55	06	88	77	04	74	47	67
63	01	63	78	59	16	95	55	67	19	98	10	50	71	75
33	21	12	34	29	78	64	56	07	82	52	42	07	44	38
57	60	86	32	44	09	47	27	96	54	49	17	46	09	62
18	18	07	92	46	44	17	16	58	09	79	83	86	19	62
26	62	38	97	75	84	16	07	44	99	83	11	46	32	24
23	42	40	64	74	82	97	77	77	81	07	45	32	14	08
52	36	28	19	95	50	92	26	11	97	00	56	76	31	38
37	85	94	35	12	83	39	50	08	30	42	34	07	96	88
70	29	17	12	13	40	33	20	38	26	13	89	51	03	74
56	62	18	37	35	96	83	50	87	75	97	12	25	93	47
99	49	57	22	77	88	42	95	45	72	16	64	36	16	00
16	08	15	04	72	33	27	14	34	09	45	59	34	68	49
31	16	93	32	43	50	27	89	87	19	20	15	37	00	49

<u>DIRECTIONS</u>:

A) Off-load all containers and then segregate the containers according to United States Environmental Protection Agency (USEPA)/Michigan Department of Natural Resources (MDNR) waste number/approval number and waste type in the East Drum Staging Area.

B) Label all of the containers containing the same waste/approval number with consecutive numbers, beginning with 01.

C) Determine the number of samples required to be collected for pre-acceptance sampling. Containers will be sampled at a 20-percent frequency.

D) Utilizing the above random number tables, choose any number as a starting point.

E) From the chosen number, go down the column and then to the next column to the right (if necessary) until you have selected enough drum numbers to sample, making sure that there are no repetitions. Please note that numbers that are larger than the total number of drums in the load are ineligible.

An example of this procedure is as follows:

1. 20 drums of F006 waste need four pre-acceptance samples collected from them;
2. The number you choose is 88 in the tenth column from the left;
3. The first eligible numbers downwards in that column are 19, 09, 09, 19, but the 09 and 19 have already been chosen. Therefore precede to column number 11 at the top you would choose 05 and 17;
4. Your four eligible random numbers are 19, 09, 05 and 17; and
5. The drums in your load of F006 waste with the corresponding numbers would then be sampled.

FIGURE 1

TECHNOLOGY NAME

Deactivation (DEACT)

APPLICABLE WASTE TYPES

Wastes exhibiting the characteristics of Ignitability, Corrosivity, or Reactivity such as D001, D002, and D003 hazardous waste numbers.

PRE-TREATMENT REQUIREMENTS

Waste Specific

CRITICAL DESIGN PARAMETERS

- Dependent on which characteristic is exhibited.
- Deactivation technologies include those recommended in 40CFR Part 268 Appendix VI.

WASTE CHARACTERISTICS AFFECTING PERFORMANCE

- STATE - solid, liquid, or sludge.
- ALKALINITY, ACIDITY, AND pH.
- FLASH POINT.
- CONCENTRATION OF OTHER CONSTITUENTS PRESENT.
- DEACTIVATION BY-PRODUCTS.

NOTE: MICHIGAN DISPOSAL DOES NOT ACCEPT REACTIVE WASTES

UNDERLYING PRINCIPLE OF OPERATION

The treatment standard for many subcategories of characteristic hazardous D001, D002, and D003 wastes remove the characteristic of Ignitability, Corrosivity, or Reactivity. EPA has determined that many technologies such as those listed below, when used alone or in combination can achieve the treatment stardard. Example deactivation technologies include:

Chemical Oxidation	(CHOXD)
Chemical Reduction	(CHRED)
Stabilization	(STABL)
Neutralization	(NEUTR)

FIGURE 2

TECHNOLOGY NAME

Chemical Oxidation (CHOXD)

APPLICABLE WASTE TYPES

Wastes containing organics, organo-metallics, cyanides, or sulfides. Oxidize arsenic to insoluble form in waste waters or inorganic sludges from metal plating/finishing. Typical hazardous waste numbers include F006, F007, F008, F009, F011, F012, F010, F019, F001-F005, D018-D043.

PRE-TREATMENT REQUIREMENTS

Frequently requires raising pH to alkaline range.

CRITICAL DESIGN PARAMETERS

- Oxidation/reduction potential.
- Residence time.
- Amount and type of oxidizing agent - add excess and monitor ORP.
- Degree of mixing.
- pH - optimize (moderately alkaline ~10-11.5).
- Oxidation temperature.
- Amount and type of any catalyst.
- TOC may be used as surrogate parameter for organics.

WASTE CHARACTERISTICS AFFECTING PERFORMANCE

- CONCENTRATION OF OTHER OXIDIZABLE COMPOUNDS. Increases demand in reagent; high sulfide may require additional reagent.
- CONCENTRATION OF METAL SALTS (especially Pb and Ag) Can cause excess consumption of reagent. Metal-cyanide complexes are more difficult to oxidize.

UNDERLYING PRINCIPLE OF OPERATION

The basic principle of chemical oxidation is that inorganic cyanides, selected dissolved organic compounds and sulfides can be chemically oxidized to yield carbon dioxide, nitrogen, water, salts, simple organic acids and in the case of sulfides, sulfates. Typical oxidants and reactions using sodium hypochlorite are:

Cyanide

$CN^{-}+NaOCl$ --- $OCN^{-}+NaCl$

$2OCN^{-}+3NaOCl$ --- $CO_3^{-2}+CO_2+N_2+3NaCl$

Phenol

$C_6H_5OH+14NaOCl$ --- $6CO_2+3H_2O+14NaCl$

Sulfide

$S^{-2}+4NaOCl$ --- $SO_4^{-2}+4NaCl$

FIGURE 3

TECHNOLOGY NAME

Chemical Reduction (CHRED)

APPLICABLE WASTE TYPES

Reduce hexavalent chromium and selenate ions. Treat oxidizing wastes containing reducible organics, inorganic oxidizers from plating, metal finishing, chromium pigments, mining, ore processing, or chemical manufacturing. Typical hazardous waste numbers include D007, D010, F006-F009, F011, F012, and F019.

PRE-TREATMENT REQUIREMENTS

Frequently requires lowering pH to acidic range.

CRITICAL DESIGN PARAMETERS

- Oxidation/reduction potential.
- Residence time.
- Amount and type of reducing agent - add excess and monitor ORP.
- Degree of mixing.
- pH - usually at lower pH; <4.
- Reduction temperature.

WASTE CHARACTERISTICS AFFECTING PERFORMANCE

- CONCENTRATION OF OTHER REDUCIBLE COMPOUNDS. Increases demand in reagent. If TOC or inorganic oxidizer concentration is high, may not be applicable technology.
- CONCENTRATION OF OIL AND GREASE. Causes monitoring problems/fouling. If high, may not be applicable technology.

UNDERLYING PRINCIPLE OF OPERATION

The basic principle of chemical reduction is to reduce the valence of oxidizers and other constituents such as metals through oxidation-reduction reactions. Reducing agents such as ferrous sulfate or sodium sulfite are used to reduce specific constituents such as hexavalent chromium:

$$H_2(Cr^{+6})_2O_7 + 3Na_2SO_3 + 3H_2SO_4 \text{ ---- } (Cr^{+3})_2(SO_4)_3 + 3Na_2SO_4 + 4H_2O$$

FIGURE 4

TECHNOLOGY NAME

Stabilization (STABL) / Microencapsulation (MICRO)

APPLICABLE WASTE TYPES

Wastes and hazardous debris containing leachable metals, high filterable solids content, low total organic content, and low oil and grease content. These include residuals from treatment of electroplating waste waters, characteristic and listed metal wastes. Typical hazardous waste numbers include D004-D011, F006-F009, F011, F012, F019, K061, F001-F005, D018-D043.

PRE-TREATMENT REQUIREMENTS

- May require reducing or oxidizing metals to lower solubility states.
- May require reducing oil and grease or organic content.

CRITICAL DESIGN PARAMETERS

- Amount and type of stabilizing agent and additives.
- Degree of mixing.
- Residence time.
- Temperature and humidity.
- Form of metals
    - Oxidation state.
    - Solubility.

WASTE CHARACTERISTICS AFFECTING PERFORMANCE

- CONCENTRATION OF FINE PARTICLES. Very FINE particles (<No. 200 mesh) may weaken chemical bonds and increase leachability.
- CONCENTRATION OF OIL AND GREASE. High OIL AND grease content coat particles, weaken chemical bonding, and increase leachability.
- CONCENTRATION OF ORGANIC COMPOUNDS. High ORGANIC content (TOC) and organic compounds can inhibit curing and increase leachability.
- CONCENTRATION OF SULFATE AND CHLORIDE COMPOUNDS. High sulfate or chloride content may interfere with chemical reactions, weaken bond strength, affect cure time, strength, and increase leachability.
- SOLUBILITY OF METAL COMPOUNDS. Metals should be present in most insoluble form.

UNDERLYING PRINCIPLE OF OPERATION

The basic principle of operation for stabilization is that leachable metals and low levels of selected organics are immobilized by the addition of stabilization reagents. The leachability is reduced by the formation of a lattice structure and/or chemical bonds that bind the contaminants into a solid matrix thereby limiting the concentrations of contaminants that can be leached when water contacts the waste material. Stabilization of metals is most effective when the metal is in its least soluble state. Typical stabilization reagents include Portland cement, lime and cement kiln dust. Micro encapsulation involves stabilization of hazardous debris such that the leachability of hazardous contaminants are reduced.

APPENDIX A

WASTE TYPES ACCEPTABLE FOR TREATMENT AND STORAGE

MICHIGAN DISPOSAL WASTE TREATMENT PLANT MID 000724831

NOTES:

The volatile organic compound (VOC) content of all hazardous wastes shall be less than (<) or equal (=) to 2.0-percent by weight.

The VOC content of non-hazardous wastes shall be < or = to 20.0-percent by weight.

The flash point of all wastes shall be greater than (>) or = to 90-degrees Fahrenheit (°F).

Includes all United States Environmental Protection Agency (USEPA) and Michigan Department of Natural Resources (MDNR) hazardous waste codes, except Dioxin-containing wastes (F020-F023, F026-F028, K043, and K099).

Reactive wastes (D003, K027, K044, K047, K161, and K045) shall be accepted only after Deactivation (i.e., treatment residues that retain the code).

Any waste codes that have a Land Disposal Restriction (LDR) technology-based treatment standard, other than Deactivation (DEACT), Chemical Reduction (CHRED), Chemical Oxidation (CHOXD), or Stabilization (STABL) cannot currently be treated by the facility, except as certified treatment residues.

P and U coded wastes may be treated at the MDWTP if they can be successfully treated by the MDWTP processes. If they cannot be successfully treated by MDWTP, the P and U coded wastes may be received for storage prior to transshipment to a properly permitted facility.

Wastes with a superscripted R have the potential to be reactive. These wastes will only be received as certified treatment residues, contaminated soil, contaminated debris, or spill residues that do not exhibit the characteristic of reactivity.

REVISED APPENDIX A
Michigan Disposal Waste Treatment Plant
MID 000724831

DEQ Attachment 8

Waste Code	Waste Description	Hazard Code	CAS No.
D001	Ignitable liquids based on 261.21(a)(1)-Wastewaters	(I)	
D001	Ignitable liquids based on 261.21(a)(1) - Low TOC Ignitable Liquids Subcategory - Less than 10% total organic carbon	(I)	
D001^R	Ignitable compressed gases based on 261.21(a)(3)	(I)	
D001^R	Ignitable reactives based on 261.21(a)(2)	(I)	
D001	Oxidizers based on 261.21(a)(4)	(I)	
D002	Acid Subcategory based on 261.22(a)(1)	(C)	
D002	Alkaline Subcategory based on 261.22 (a) (1)	(C)	
D002	Other corrosives based on 261.22(a)(2)	(C)	
D003^R	Deactivated Reactive waste based upon 261.23	(R)	
D004	Arsenic	(T)	7440-38-2
D005	Barium	(T)	7440-39-3
D018	Benzene	(T)	71-43-2
D006	Cadmium	(T)	7440-43-9
D019	Carbon tetrachloride	(T)	56-23-5
D020	Chlordane	(T)	57-74-9
D021	Chlorobenzene	(T)	108-90-7
D022	Chloroform	(T)	67-66-3
D007	Chromium	(T)	7440-47-3
D023	o-Cresol	(T)	95-48-7
D024	m-Cresol	(T)	108-39-4
D025	p-Cresol	(T)	106-44-5
D026	Cresol	(T)	
D016	2,4-D	(T)	94-75-7
D027	1,4-Dichlorobenzene	(T)	106-46-7
D028	1,2-Dichloroethane	(T)	107-06-2
D029	1,1-Dichloroethylene	(T)	75-35-4
D030	2,4-Dinitrotoluene	(T)	121-14-2
D012	Endrin	(T)	72-20-8
D031	Heptachlor (and its epoxide)	(T)	76-44-8
D032	Hexachlorobenzene	(T)	118-74-1
D033	Hexachlorobutadiene	(T)	87-68-3
D034	Hexachloroethane	(T)	67-72-1
D008	Lead	(T)	7439-92-1
D013	Lindane	(T)	58-89-9
D009	Mercury	(T)	7439-97-6
D014	Methoxychlor	(T)	72-43-5
D035	Methyl ethyl ketone	(T)	78-93-3
D036	Nitrobenzene	(T)	98-95-3
D037	Pentrachlorophenol	(T)	87-86-5
D038	Pyridine	(T)	110-86-1
D010	Selenium	(T)	7782-49-2
D011	Silver	(T)	7440-22-4
D039	Tetrachloroethylene	(T)	127-18-4
D015	Toxaphene	(T)	8001-35-2
D040	Trichloroethylene	(T)	79-01-6
D041	2,4,5-Trichlorophenol	(T)	95-95-4
D042	2,4,6-Trichlorophenol	(T)	88-06-2
D017	2,4,5-TP (Silvex)	(T)	93-72-1

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MID 000724831

Waste Code	Waste Description	Hazard Code	CAS No.
D043	Vinyl chloride	(T)	75-01-4
F001	The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing; containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(T)	
F002	The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(T)	
F003	The following spent non-halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(I)*	
F004	The following spent non-halogenated solvents: Cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(T)	
F005	The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(I,T)	
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and plating on carbon steel; and (6) chemical etching and milling of aluminum	(T)	
F007	Spent cyanide plating bath solutions from electroplating operations	(R,T)	

REVISED APPENDIX A
Michigan Disposal Waste Treatment Plant
MID 000724831

DEQ Attachment 8

Waste Code	Waste Description	Hazard Code	CAS No.
F008	Flating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process	(R,T)	
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process	(R,T)	
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process	(R,T)	
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations	(R,T)	
F012	Quenching waste water treatment sludges from metal heat treating operations where cyanides are used in the process	(T)	
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process	(T)	
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor clean-out wastes from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes; these chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. [This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in Section 261.31 or Section 261.32]	(T)	
F025	Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes; these chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution	(T)	
F032	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with □ wastes that are otherwise currently regulated as hazardous wastes (i e , F034 or F035), and where the generator does not resume or initiate use of chlorophenolic formulations) This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	(T)	
F034	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations; this listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	(T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
F035	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium; this listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	(T)	
F037	Petroleum refinery primary oil/water/solids separation sludge-Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in □ sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing	(T)	
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge-Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries; such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment fromother process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in □ sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing	(T)	
F039	Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under subpart D of this part (Leachate resulting from the disposal of one or more of the following EPA Hazardous Wastes and no other Hazardous Wastes retains its EPA Hazardous Waste Number(s): F020, F021, F022, F026, F027, and/or F028)	(T)	
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol	(T)	
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments	(T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
K003	Wastewater treatment sludge from the production of molybdate orange pigments		
K004	Wastewater treatment sludge from the production of zinc yellow pigments	(T)	
K005	Wastewater treatment sludge from the production of chrome green pigments	(T)	
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated)	(T)	
K007	Wastewater treatment sludge from the production of iron blue pigments	(T)	
K008	Oven residue from the production of chrome oxide green pigments	(T)	
K009	Distillation bottoms from the production of acetaldehyde from ethylene	(T)	
K010	Distillation side cuts from the production of acetaldehyde from ethylene	(T)	
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile	(R,T)	
K013	Bottom stream from the acetonitrile column in	(R,T)	
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile	(T)	
K015	Still bottoms from the distillation of benzylchloride	(T)	
K016	Heavy ends or distillation residues from the production of carbon tetrachloride	(T)	
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin	(T)	
K018	Heavy ends from the fractionation column in ethyl chloride production	(T)	
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production	(T)	
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production	(T)	
K021	Aqueous spent antimony catalyst waste from fluoromethanes production	(T)	
K022	Distillation bottom tars from the production of phenol/acetone from cumene	(T)	
K023	Distillation light ends from the production of phthalic anhydride from naphthalene	(T)	
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene	(T)	
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene	(T)	
K026	Stripping still tails from the production of methy ethyl pyridines	(T)	
K027[R]	Deactivated centrifuge and distillation residues from toluene dilsocyanate production	(R, T)	
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane	(T)	
K029	Waste from the product steam stripper in the production of 1,1,1-trichloroethane	(T)	
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and per-chloroethylene	(T)	
K031	MSMA and cacodylic acid	(T)	
K032	Wastewater treatment sludge from the production of chlordane	(T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane	(T)	
K034	Filter solids from the filtration of hexachloro-cyclopentadiene in the production of chlordane	(T)	
K035	Wastewater treatment sludges generated in theproduction of creosote	(T)	
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton	(T)	
K037	Wastewater treatment sludges from the production of disulfoton	(T)	
K038	Wastewater from the washing and stripping of phorate production	(T)	
K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate	(T)	
K040	Wastewater treatment sludge from the production of phorate	(T)	
K041	Wastewater treatment sludge from the production of toxaphene	(T)	
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in theproduction of 2,4,5-T	(T)	
K044^R	Deactivated wastewater treatment sludges from the manufacturing and processing of explosives	(R)	
K045^R	Deactivated spent carbon from the treatment of wastewater containing explosives	(R)	
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds	(T)	
K047^R	Deactivated pink/red water from TNT operations	(R)	
K048	Dissolved air flotation (DAF) float from the petroleum refining industry	(T)	
K049	Slop oil emulsion solids from the petroleum refining industry	(T)	
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry	(T)	
K051	API separator sludge from the petroleum refining industry	(T)	
K052	Tank bottoms (leaded) from the petroleum refining in dustry	(T)	
K060	Ammonia still lime sludge from coking operations	(T)	
K061	Emission control dust/sludge from the primary production of steel in electric furnaces	(T)	
K062	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332)	(C,T)	
K064	Acid plant blowdown slurry/sludge resulting from (T)the thickening of blowdown slurry from primary copper production		
K065	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities	(T)	
K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production	(T)	
K069	Emission control dust/sludge from secondary lead smelting. (Note: This listing is stayed administratively for sludge generated from secondary acid scrubber systems. The stay will remain in effect until further administrative action is taken. If EPA takes further action effecting this stay, EPA will publish a notice of the action in the Federal Register	(T)	
K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used	(T)	
K073	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production	(T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
K083	Distillation bottoms from aniline production	(T)	
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)	
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes	(T)	
K086	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers,soaps, and stabilizers containing chromium and lead	(T)	
K087	Decanter tank tar sludge from coking operations	(T)	
K088	Spent potliners from primary aluminum reduction	(T)	
K090	Emission control dust or sludge from ferrochromiumsilicon production	(T)	
K091	Emission control dust or sludge from ferrochromium production	(T)	
K093	Distillation light ends from the production ofphthalic anhydride from ortho-xylene	(T)	
K094	Distillation bottoms from the production ofphthalic anhydride from ortho-xylene	(T)	
K095	Distillation bottoms from the production of1,1,1-trichloroethane	(T)	
K096	Heavy ends from the heavy ends column from theproduction of 1,1,1-trichloroethane	(T)	
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane	(T)	
K098	Untreated process wastewater from the production of toxaphene	(T)	
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting	(T)	
K101	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)	
K102	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)	
K103	Process residues from aniline extraction from the production of aniline	(T)	
K104	Combined wastewater streams generated from ni-trobenzene/aniline production	(T)	
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes	(T)	
K106	Wastewater treatment sludge from the mercury cell process in chlorine production	(T)	
K107	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides		
K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides		
K109	Spent filter cartridges from product purification from the production of 1,1 dimethylhydrazine (UDMH) from carboxylic acid hydrazides		
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides		

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Waste Code	Waste Description	Hazard Code	CAS No.
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene	(C,T)	
K112	Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene		
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluendiamine via hydrogention of dinitrotoluene		
K114	Vicinals from the purification of toluenediamine in the production of toluendiamine via hydrogention of dinitrotoluene		
K115	Heavy ends from the purification of toluenediamine in the production of toluendiamine via hydrogention of dinitrotoluene		
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediaminepurification of toluenediamine via hydrogention of dinitrotoluene		
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide viabromination of ethene	(T)	
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene	(T)	
K123	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salt		
K124	Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts		
K125	Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts		
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts		
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide	(C,T)	
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide	(T)	
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene	(T)	
K141	Process residues from the recovery of coal tar, including, but not limited to, collecting sump residues from the production of coke from coal or the recovery of coke by-products produced from coal This listing does not include K087 (decanter tank tar sludges from coking operations)	(T)	
K142	Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products from coal	(T)	
K143	Process residues from the recovery of light oil,including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal	(T)	
K144	Wastewater sump residues from light oil refining, including, but not limited to,intercepting or contamination sump sludges from the recovery of coke by-products produced from coal	(T)	
K145	Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal	(T)	
K147	Tar storage tank residues from coal tar refining	(T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
K148	Residues from coal tar distillation, including but not limited to, still bottoms	(T)	
K149	Distillation bottoms from the production of alpha-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups, (This waste does not include still bottoms from the distillation of benzyl chloride)	(T)	
K150	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups	(T)	
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups	(T)	
K156	Organic wastes (including heavy ends, still bottoms, light ends, spent solvents, filtrates and decantes) from the production of carbamates and carbamoyl oximes.	(T)	
K157	Wastewaters (including scrubber waters, condenser waters, washwaters and separation waters) from the production of carbamates and carbamoyl oximes.	(T)	
K158	Bag house dusts and filter/separation solids from the production of carbamates and carbamoyl oximes.	(T)	
K159	Organics from treatment of thiocarbamate wastes	(T)	
K160	Solids (including filter wastes, separation solids and spent catalysts) from the production of thiocarbamates and solids from the treatment of thiocarbamate wastes.	(T)	
K161	Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts.(This listing does not include K125 or K126.). including antimony and arsenic	(R,T)	
P023	Acetaldehyde, chloro-		107-20-0
P002	Acetamide, N-(aminothioxomethyl)-		591-08-2
P057	Acetamide, 2-fluoro-		640-19-7
P058	Acetic acid, fluoro-, sodium salt		62-74-8
P002	1-Acetyl-2-thiourea		591-08-2
P003	Acrolein		107-02-8
P070	Aldicarb		116-06-3
P203	Aldicarb sulfone.		1646-88-4
P004	Aldrin		309-00-2
P005	Allyl alcohol		107-18-6
P006	Aluminum phosphide (R,T)		20859-73-8
P007	5-(Aminomethyl)-3-isoxazolol		2763-96-4
P008	4-Aminopyridine		504-24-5
P009	Ammonium picrate (R)		131-74-8
P119	Ammonium vanadate		7803-55-6

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Waste Code	Waste Description	Hazard Code	CAS No.
P099	Argentate(1-), bis(cyano-C)-, potassium		506-61-6
P010	Arsenic acid H3AsO4		7778-39-4
P012	Arsenic oxide As2O3		1327-53-3
P011	Arsenic oxide As2O5		1303-28-2
P011	Arsenic pentoxide		1303-28-2
P012	Arsenic trioxide		1327-53-3
P038	Arsine, diethyl-		692-42-2
P036	Arsonous dichloride, phenyl-		696-28-6
P054	Aziridine		151-56-4
P067	Aziridine, 2-methyl-		75-55-8
P013	Barium cyanide		542-62-1
P024	Benzenamine, 4-chloro-		106-47-8
P077	Benzenamine, 4-nitro-		100-01-6
P028	Benzene, (chloromethyl)-		100-44-7
P042	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-		51-43-4
P046	Benzeneethanamine, alpha,alpha-dimethyl-		122-09-8
P014	Benzenethiol		108-98-5
P127	7-Benzofuranol, 2,3-dihydro-2,2-dimethylmethylcarbamate.		1563-66-2
P188	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol -5-yl methylcarbamate ester (1:1).		57-64-7
P001	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1 - phenylbutyl)-, & salts, when present at concentrations greater than 0.3%		181-81-2
P028	Benzyl chloride		100-44-7
P015	Beryllium powder		7440-41-7
P017	Bromoacetone		598-31-2
P018	Brucine		357-57-3
P045	2-Butanone, 3,3-dimethyl-1-(methylthio)-, ...O-[methylamino)carbonyl] oxime		39196-18-4
P021	Calcium cyanide		592-01-8
P021	Calcium cyanide Ca(CN)2		592-01-8
P189	Carbamic acid, [(dibutylamino)-thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester.		55285-14-8
P191	Carbamic acid, dimethyl-, 1-[(dimethyl-amino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester.		644-64-4
P192	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester.		119-38-0
P190	Carbamic acid, methyl-, 3-methylphenyl ester.		1129-41-5
P127	Carbofuran.		1563-66-2
P022	Carbon disulfide		75-15-0
P095	Carbonic dichloride		75-44-5
P189	Carbosulfan.		55285-14-8
P023	Chloroacetaldehyde		107-20-0
P024	p-Chloroaniline		106-47-8
P026	1-(o-Chlorophenyl)thiourea		5344-82-1
P027	3-Chloropropionitrile		542-76-7
P029	Copper cyanide		544-92-3
P029	Copper cyanide Cu(CN)		544-92-3
P202	m-Cumenyl methylcarbamate.		64-00-6
P030	Cyanides (soluble cyanide salts), not otherwise specified		....

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Waste Code	Waste Description	Hazard Code	CAS No.
P031	Cyanogen		460-19-5
P033	Cyanogen chloride		506-77-4
P033	Cyanogen chloride (CN)Cl		506-77-4
P034	2-Cyclohexyl-4,6-dinitrophenol		131-89-5
P016	Dichloromethyl ether		542-88-1
P036	Dichlorophenylarsine		696-28-6
P037	Dieldrin		60-57-1
P038	Diethylarsine		692-42-2
P041	Diethyl-p-nitrophenyl phosphate		311-45-5
P040	O,O-Diethyl O-pyrazinyl phosphorothioate		297-97-2
P043	Diisopropylfluorophosphate (DFP)		55-91-4
P004	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a,-hexahydro-,.(1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-		309-00-2
P060	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-		465-73-6
P037	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-		60-57-1
P051	2,7:3,6-Dimethanonaphth [2,3-b]oxirene,3,4,5,6,9,9-hexa-chloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-, & metabolites		172-20-8
P044	Dimethoate		60-51-5
P191	Dimetilan.		644-64-4
P046	alpha,alpha-Dimethylphenethylamine		122-09-8
P047	4,6-Dinitro-o-cresol, & salts 1		1534-52-
P048	2,4-Dinitrophenol		51-28-5
P020	Dinoseb		88-85-7
P085	Diphosphoramide, octamethyl-		152-16-9
P111	Diphosphoric acid, tetraethyl ester		107-49-3
P039	Disulfoton		298-04-4
P049	Dithiobiuret		541-53-7
P185	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-,O- [(methylamino)-carbonyl]oxime.		26419-73-8
P050	Endosulfan		115-29-7
P088	Endothall		145-73-3
P051	Endrin		72-20-8
P051	Endrin, & metabolites		72-20-8
P042	Epinephrine		51-43-4
P031	Ethanedinitrile		460-19-5
P194	Ethanimidothioc acid, 2-(dimethylamino)-N-[[(methylamino)carbonyl]oxy]-2-oxo-, methyl ester.		23135-22-0
P066	Ethanimidothioic acid,...N-[[(methylamino)carbonyl]oxy]-, methyl ester		16752-77-5
P101	Ethyl cyanide		107-12-0
P054	Ethyleneimine		151-56-4
P097	Famphur		52-85-7
P056	Fluorine		7782-41-4
P057	Fluoroacetamide		640-19-7
P058	Fluoroacetic acid, sodium salt		62-74-8

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P198	Formetanate hydrochloride.		23422-53-9
P197	Formparanate.		17702-57-7
P065	Fulminic acid, mercury(2+) salt (R,T)		628-86-4
P059	Heptachlor		76-44-8
P062	Hexaethyl tetraphosphate		757-58-4
P116	Hydrazinecarbothioamide		79-19-6
P068	Hydrazine, methyl-		60-34-4
P063	Hydrocyanic acid		74-90-8
P063	Hydrogen cyanide		74-90-8
P096	Hydrogen phosphide		7803-51-2
P060	Isodrin		465-73-6
P192	Isolan.		119-38-0
P202	3-Isopropylphenyl N-methylcarbamate.		64-00-6
P007	3(2H)-Isoxazolone, 5-(aminomethyl)-		2763-96-4
P196	Manganese, bis(dimethylcarbamodithioato-S,S')-,		15339-36-3
P196	Manganese dimethyldithiocarbamate.		15339-36-3
P092	Mercury, (acetato-O)phenyl-		62-38-4
P065	Mercury fulminate (R,T)		628-86-4
P082	Methanamine, N-methyl-N-nitroso-		62-75-9
P064	Methane, isocyanato-		624-83-9
P016	Methane, oxybis[chloro-		542-88-1
P112	Methane, tetranitro-(R)		509-14-8
P118	Methanethiol, trichloro-		75-70-7
P198	Methanimidamide, N,N-dimethyl-N'-[3-[[(methylamino)-carbonyl]oxy] phenyl]-, monohydrochloride.		23422-53-9
P197	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[[(methyl-amino)carbonyl]o xy]phenyl]-		17702-57-7
P050	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide		115-29-7
P059	4,7-Methano-1H-indene,1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-		76-44-8
P199	Methiocarb.		2032-65-7
P066	Methomyl		16752-77-5
P068	Methyl hydrazine		60-34-4
P064	Methyl isocyanate		624-83-9
P069	2-Methyllactonitrile		75-86-5
P071	Methyl parathion		298-00-0
P190	Metolcarb.		1129-41-5
P128	Mexacarbamate		315-18-4
P072	alpha-Naphthylthiourea		86-88-4
P073	Nickel carbonyl		13463-39-3
P073	Nickel carbonyl Ni(CO)4, (T-4)-		13463-39-3
P074	Nickel cyanide		557-19-7
P074	Nickel cynaide Ni(CN)2		557-19-7
P075	Nicotine, & salts		154-11-5
P076	Nitric oxide		10102-43-9
P077	p-Nitroaniline		100-01-6
P078	Nitrogen dioxide		10102-44-0
P076	Nitrogen oxide NO		10102-43-9
P078	Nitrogen oxide NO2		10102-44-0

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P081	Nitroglycerine (R)		55-63-0
P082	N-Nitrosodimethylamine		62-75-9
P084	N-Nitrosomethylvinylamine		4549-40-0
P085	Octamethylpyrophosphoramide		152-16-9
P087	Osmium oxide OsO4, (T-4)-		20816-12-0
P087	Osmium tetroxide		20816-12-0
P088	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid		145-73-3
P194	Oxamyl.		23135-22-0
P089	Parathion		56-38-2
P034	Phenol, 2-cyclohexyl-4,6-dinitro-		131-89-5
P048	Phenol, 2,4-dinitro-		51-28-5
P047	Phenol, 2-methyl-4,6-dinitro-, & salts, 1		1534-52-
P020	Phenol, 2-(1-methylpropyl)-4,6-dinitro-		88-85-7
P009	Phenol, 2,4,6-trinitro-, ammonium salt (R)		131-74-8
P128	Phenol, 4-(dimethylamino)-3,5-dimethyl-,methylcarbamate(ester).		315-18-4
P199	Phenol, (3,5-dimethyl-4-(methylthio)-,methylcarbamate		2032-65-7
P202	Phenol, 3-(1-methylethyl)-, methyl carbamate.		64-00-6
P201	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate.		2631-37-0
P092	Phenylmercury acetate		62-38-4
P093	Phenylthiourea		103-85-5
P094	Phorate		298-02-2
P095	Phosgene		75-44-5
P096	Phosphine		7803-51-2
P041	Phosphoric acid, diethyl 4-nitrophenyl ester		311-45-5
P039	Phosphorodithioic acid, O,O-diethyl.S-[2-(ethylthio)ethyl] ester		298-04-4
P094	Phosphorodithioic acid, O,O-diethyl.S-[(ethylthio)methyl] ester		298-02-2
P044	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester		60-51-5
P043	Phosphorofluoridic acid, bis(1-methylethyl) ester		55-91-4
P089	Phosphorothioic acid, O,O-diethyl, O-(4-nitrophenyl) ester		56-38-2
P040	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester		297-97-2
P097	Phosphorothioic acid,...O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester		52-85-7
P071	Phosphorothioic acid, O,O,-dimethyl O-(4-nitrophenyl) ester		298-00-0
P204	Physostigmine.		57-47-6
P188	Physostigmine salicylate.		57-64-7
P110	Plumbane, tetraethyl-		78-00-2
P204	Physostigmine.		57-47-6
P188	Physostigmine salicylate.		57-64-7
P098	Potassium cyanide		151-50-8
P098	Potassium cyanide K(CN)		151-50-8
P099	Potassium silver cyanide		506-61-6
P201	Promecarb		2631-37-0
P203	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-[(methylamino)carbonyl] oxime.		1646-88-4
P070	Propanal, 2-methyl-2-(methylthio)-,...O-[(methylamino)carbonyl]oxime		116-06-3
P101	Propanenitrile		107-12-0
P027	Propanenitrile, 3-chloro-		542-76-7
P069	Propanenitrile, 2-hydroxy-2-methyl-		75-86-5

Waste Code	Waste Description	Hazard Code	CAS No.
P081	1,2,3-Propanetriol, trinitrate (R)		55-63-0
P017	2-Propanone, 1-bromo-		598-31-2
P102	Propargyl alcohol		107-19-7
P003	2-Propenal		107-02-8
P005	2-Propen-1-ol		107-18-6
P067	1,2-Propylenimine		75-55-8
P102	2-Propyn-1-ol		107-19-7
P008	4-Pyridinamine		504-24-5
P075	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts		154-11-5
P204	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-,methylcarbamate (ester), (3aS-cis)-.		57-47-6
P114	Selenious acid, dithallium(1+) salt		12039-52-0
P103	Selenourea		630-10-4
P104	Silver cyanide		506-64-9
P104	Silver cyanide Ag(CN)		506-64-9
P105	Sodium azide		26628-22-8
P106	Sodium cyanide		143-33-9
P106	Sodium cyanide Na(CN)		143-33-9
P108	Strychnidin-10-one, & salts		157-24-9
P018	Strychnidin-10-one, 2,3-dimethoxy-		357-57-3
P108	Strychnine, & salts		157-24-9
P115	Sulfuric acid, dithallium(1+) salt		7446-18-6
P109	Tetraethyldithiopyrophosphate		3689-24-5
P110	Tetraethyl lead		78-00-2
P111	Tetraethyl pyrophosphate		107-49-3
P112	Tetranitromethane (R)		509-14-8
P062	Tetraphosphoric acid, hexaethyl ester		757-58-4
P113	Thallic oxide		1314-32-5
P113	Thallium oxide Tl2O3		1314-32-5
P114	Thallium(I) selenite		12039-52-0
P115	Thallium(I) sulfate		7446-18-6
P109	Thiodiphosphoric acid, tetraethyl ester		3689-24-5
P045	Thiofanox		39196-18-4
P049	Thioimidodicarbonic diamide [(H2N)C(S)]2NH		541-53-7
P014	Thiophenol		108-98-5
P116	Thiosemicarbazide		79-19-6
P026	Thiourea, (2-chlorophenyl)-		5344-82-1
P072	Thiourea, 1-naphthalenyl-		86-88-4
P093	Thiourea, phenyl-		103-85-5
P185	Tirpate.		26419-73-8
P123	Toxaphene		8001-35-2
P118	Trichloromethanethiol		75-70-7
P119	Vanadic acid, ammonium salt		7803-55-6
P120	Vanadium oxide V2O5		1314-62-1
P120	Vanadium pentoxide		1314-62-1
P084	Vinylamine, N-methyl-N-nitroso-		4549-40-0
P001	Warfarin, & salts, when present at concentrations greater than 0.3%		181-81-2
P205	Zinc, bis(dimethylcarbamodithioato-S,S')-,		137-30-4
P121	Zinc cyanide		557-21-1

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P121	Zinc cyanide Zn(CN)2		557-21-1
P122	Zinc phosphide Zn3P2, when present at concentrations greater than 10% (R,T)		1314-84-7
P205	Ziram.		137-30-4
U394	A2213.		30558-43-1
U001	Acetaldehyde (I)		75-07-0
U034	Acetaldehyde, trichloro-		75-87-6
U187	Acetamide, N-(4-ethoxyphenyl)-		62-44-2
U005	Acetamide, N-9H-fluoren-2-yl-		53-96-3
U240	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters		194-75-7
U112	Acetic acid ethyl ester (I)		141-78-6
U144	Acetic acid, lead(2+) salt		301-04-2
U214	Acetic acid, thallium(1+) salt		563-68-8
U002	Acetone (I)		67-64-1
U003	Acetonitrile (I,T)		75-05-8
U004	Acetophenone		98-86-2
U005	2-Acetylaminofluorene		53-96-3
U006	Acetyl chloride (C,R,T)		75-36-5
U007	Acrylamide		79-06-1
U008	Acrylic acid (I)		79-10-7
U009	Acrylonitrile		107-13-1
U011	Amitrole		61-82-5
U012	Aniline (I,T)		62-53-3
U136	Arsinic acid, dimethyl-		75-60-5
U014	Auramine		492-80-8
U015	Azaserine		115-02-6
U365	H-Azepine-1-carbothioic acid, hexahydro-, S-ethyl ester.		2212-67-1
U010	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-		50-07-7
U280	Barban.		101-27-9
U278	Bendiocarb.		22781-23-3
U364	Bendiocarb phenol.		22961-82-6
U271	Benomyl.		17804-35-2
U157	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-		56-49-5
U016	Benz[c]acridine		225-51-4
U017	Benzal chloride		98-87-3
U192	Benzamide,3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-		23950-58-5
U018	Benz[a]anthracene		56-55-3
U094	Benz[a]anthracene, 7,12-dimethyl-		57-97-6
U012	Benzenamine (I,T)		62-53-3
U014	Benzenamine, 4,4'-carbonimidoylbis [N,N-dimethyl-		492-80-8
U049	Benzenamine, 4-chloro-2-methyl-, hydrochloride		3165-93-3
U093	Benzenamine, N,N-dimethyl-4-(phenylazo)-		60-11-7
U328	Benzenamine, 2-methyl-		95-53-4
U353	Benzenamine, 4-methyl-		106-49-0
U158	Benzenamine, 4,4'-methylenebis[2-chloro-		101-14-4
U222	Benzenamine, 2-methyl-, hydrochloride		636-21-5
U181	Benzenamine, 2-methyl-5-nitro-		99-55-8

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Waste Code	Waste Description	Hazard Code	CAS No.
U019	Benzene (I,T)		71-43-2
U038	Benzeneacetic acid,4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester		510-15-6
U030	Benzene, 1-bromo-4-phenoxy-		101-55-3
U035	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-		305-03-3
U037	Benzene, chloro-		108-90-7
U221	Benzenediamine, ar-methyl-		25376-45-8
U028	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester		117-81-7
U069	1,2-Benzenedicarboxylic acid, dibutyl ester		84-74-2
U088	1,2-Benzenedicarboxylic acid, diethyl ester		84-66-2
U102	1,2-Benzenedicarboxylic acid, dimethyl ester		131-11-3
U107	1,2-Benzenedicarboxylic acid, dioctyl ester		117-84-0
U070	Benzene, 1,2-dichloro-		95-50-1
U071	Benzene, 1,3-dichloro-		541-73-1
U072	Benzene, 1,4-dichloro-		106-46-7
U060	Benzene, 1,1'-(2,2-dichloroethylidene)bis [4-chloro-		72-54-8
U017	Benzene, (dichloromethyl)-		98-87-3
U223	Benzene, 1,3-diisocyanatomethyl-(R,T)		26471-62-5
U239	Benzene, dimethyl-(I,T)		1330-20-7
U201	1,3-Benzenediol		108-46-3
U127	Benzene, hexachloro-		118-74-1
U056	Benzene, hexahydro-(I)		110-82-7
U220	Benzene, methyl-		108-88-3
U105	Benzene, 1-methyl-2,4-dinitro-		121-14-2
U106	Benzene, 2-methyl-1,3-dinitro-		606-20-2
U055	Benzene, (1-methylethyl)-(I)		98-82-8
U169	Benzene, nitro-		98-95-3
U183	Benzene, pentachloro-		608-93-5
U185	Benzene, pentachloronitro-		82-68-8
U020	Benzenesulfonic acid chloride (C,R)		98-09-9
U020	Benzenesulfonyl chloride (C,R)		98-09-9
U207	Benzene, 1,2,4,5-tetrachloro-		95-94-3
U061	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-chloro-		50-29-3
U247	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-methoxy-		72-43-5
U023	Benzene, (trichloromethyl)-		98-07-7
U234	Benzene, 1,3,5-trinitro-		99-35-4
U021	Benzidine		92-87-5
U202	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts		181-07-2
U364	1,3-Benzodioxol-4-ol, 2,2-dimethyl-,		22961-82-6
U278	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate.		22781-23-3
U203	1,3-Benzodioxole, 5-(2-propenyl)-		94-59-7
U141	1,3-Benzodioxole, 5-(1-propenyl)-		120-58-1
U090	1,3-Benzodioxole, 5-propyl-		94-58-6
U367	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-		1563-38-8
U064	Benzo[rst]pentaphene		189-55-9
U248	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations of 0.3% or less		181-81-2
U022	Benzo[a]pyrene		50-32-8
U197	p-Benzoquinone		106-51-4

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Waste Code	Waste Description	Hazard Code	CAS No.
U023	Benzotrichloride (C,R,T)		98-07-7
U085	2,2'-Bioxirane		1464-53-5
U021	[1,1'-Biphenyl]-4,4'-diamine		92-87-5
U073	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-		91-94-1
U091	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-		119-90-4
U095	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-		119-93-7
U401	Bis(dimethylthiocarbamoyl) sulfide.		97-74-5
U400	Bis(pentamethylene)thiuram tetrasulfide.		120-54-7
U225	Bromoform		75-25-2
U030	4-Bromophenyl phenyl ether		101-55-3
U128	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-		87-68-3
U172	1-Butanamine, N-butyl-N-nitroso-		924-16-3
U031	1-Butanol (I)		71-36-3
U159	2-Butanone (I,T)		78-93-3
U160	2-Butanone, peroxide (R,T)		1338-23-4
U053	2-Butenal		4170-30-3
U074	2-Butene, 1,4-dichloro-(I,T)		764-41-0
U143	2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-t etrahydro-1H-pyrrolizin-1-ylester,...[1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-		303-34-4
U031	n-Butyl alcohol (I)		71-36-3
U392	Butylate.		2008-41-5
U136	Cacodylic acid		75-60-5
U032	Calcium chromate		13765-19-0
U372	Carbamic acid, 1H-benzimidazol-2-yl, methylester.		10605-21-7
U271	Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl]-, methyl ester.		17804-35-2
U375	Carbamic acid, butyl-, 3-iodo-2-propynyl ester.		55406-53-6
U280	Carbamic acid, (3-chlorophenyl)-,4-chloro-2-butynyl ester.		101-27-9
U238	Carbamic acid, ethyl ester		51-79-6
U178	Carbamic acid, methylnitroso-, ethyl ester		615-53-2
U373	Carbamic acid, phenyl-, 1-methylethyl ester.		122-42-9
U409	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester.		23564-05-8
U097	Carbamic chloride, dimethyl-		79-44-7
U379	Carbamodithioic acid, dibutyl, sodium salt.		136-30-1
U277	Carbamodithioic acid, diethyl-,2-chloro-2-propenyl ester.		95-06-7
U381	Carbamodithioic acid, diethyl-, sodium salt.		148-18-5
U383	Carbamodithioic acid, dimethyl, potassium salt.		128-03-0
U382	Carbamodithioic acid, dimethyl-, sodium salt.		128-04-1
U376	Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthothioselenious acid.		144-34-3
U114	Carbamodithioic acid, 1,2-ethanediylbis-,...salts & esters		1111-54-6
U378	Carbamodithioic acid, (hydroxymethyl)methyl-, monopotassium salt.		51026-28-9
U377	Carbamodithioic acid, methyl,-monopotassium salt.		137-41-7
U384	Carbamodithioic acid, methyl-, monosodium salt.		137-42-8
U062	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester		2303-16-4

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U389	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester.		2303-17-5
U392	Carbamothioic acid, bis(2-methylpropyl)-, S-ethyl ester.		2008-41-5
U391	Carbamothioic acid, butylethyl-, S-propyl ester.		1114-71-2
U386	Carbamothioic acid, cyclohexylethyl-, S-ethyl ester.		1134-23-2
U390	Carbamothioic acid, dipropyl-, S-ethyl ester.		759-94-4
U387	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester.		52888-80-9
U385	Carbamothioic acid, dipropyl-, S-propyl ester.		1929-77-7
U279	Carbaryl.		63-25-2
U372	Carbendazim.		10605-21-7
U367	Carbofuran phenol.		1563-38-8
U215	Carbonic acid, dithallium(1+) salt		6533-73-9
U033	Carbonic difluoride		353-50-4
U156	Carbonochloridic acid, methyl ester (I,T)		79-22-1
U033	Carbon oxyfluoride (R,T)		353-50-4
U211	Carbon tetrachloride		56-23-5
U034	Chloral		75-87-6
U035	Chlorambucil		305-03-3
U036	Chlordane, alpha & gamma isomers		57-74-9
U026	Chlornaphazin		494-03-1
U037	Chlorobenzene		108-90-7
U038	Chlorobenzilate		510-15-6
U039	p-Chloro-m-cresol		59-50-7
U042	2-Chloroethyl vinyl ether		110-75-8
U044	Chloroform		67-66-3
U046	Chloromethyl methyl ether		107-30-2
U047	beta-Chloronaphthalene		91-58-7
U048	o-Chlorophenol		95-57-8
U049	4-Chloro-o-toluidine, hydrochloride		3165-93-3
U393	Copper, bis(dimethylcarbamodithioato-S,S')-,		137-29-1
U393	Copper dimethyldithiocarbamate.		137-29-1
U032	Chromic acid H2CrO4, calcium salt		13765-19-0
U050	Chrysene		218-01-9
U051	Creosote		....
U052	Cresol (Cresylic acid)		1319-77-3
U053	Crotonaldehyde		4170-30-3
U055	Cumene (I)		98-82-8
U246	Cyanogen bromide (CN)Br		506-68-3
U386	Cycloate.		1134-23-2
U386	Cycloate.		1134-23-2
U197	2,5-Cyclohexadiene-1,4-dione		106-51-4
U056	Cyclohexane (I)		110-82-7
U129	Cyclohexane, 1,2,3,4,5,6-hexachloro- ,.(1alpha,2alpha,3beta,4alpha,5alpha,6beta)-		58-89-9
U057	Cyclohexanone (I)		108-94-1
U130	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-		77-47-4
U058	Cyclophosphamide		50-18-0
U240	2,4-D, salts & esters		194-75-7
U059	Daunomycin		20830-81-3

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U060	DDD		72-54-8
U061	DDT		50-29-3
U366	Dazomet.		533-74-4
U062	Diallate		2303-16-4
U063	Dibenz[a,h]anthracene		53-70-3
U064	Dibenzo[a,i]pyrene		189-55-9
U066	1,2-Dibromo-3-chloropropane		96-12-8
U069	Dibutyl phthalate		84-74-2
U070	o-Dichlorobenzene		95-50-1
U071	m-Dichlorobenzene		541-73-1
U072	p-Dichlorobenzene		106-46-7
U073	3,3'-Dichlorobenzidine		91-94-1
U074	1,4-Dichloro-2-butene (I,T)		764-41-0
U075	Dichlorodifluoromethane		75-71-8
U078	1,1-Dichloroethylene		75-35-4
U079	1,2-Dichloroethylene		156-60-5
U025	Dichloroethyl ether		111-44-4
U027	Dichloroisopropyl ether		108-60-1
U024	Dichloromethoxy ethane		111-91-1
U081	2,4-Dichlorophenol		120-83-2
U082	2,6-Dichlorophenol		87-65-0
U084	1,3-Dichloropropene		542-75-6
U085	1,2:3,4-Diepoxybutane (I,T)		1464-53-5
U395	Diethylene glycol, dicarbamate.		5952-26-1
U108	1,4-Diethyleneoxide		123-91-1
U028	Diethylhexyl phthalate		117-81-7
U086	N,N'-Diethylhydrazine		1615-80-1
U087	O,O-Diethyl S-methyl dithiophosphate		3288-58-2
U088	Diethyl phthalate		84-66-2
U089	Diethylstilbesterol		56-53-1
U090	Dihydrosafrole		94-58-6
U091	3,3'-Dimethoxybenzidine		119-90-4
U092	Dimethylamine (I)		124-40-3
U093	p-Dimethylaminoazobenzene		60-11-7
U094	7,12-Dimethylbenz[a]anthracene		57-97-6
U095	3,3'-Dimethylbenzidine		119-93-7
U096	alpha,alpha-Dimethylbenzylhydroperoxide (R)		80-15-9
U097	Dimethylcarbamoyl chloride		79-44-7
U098	1,1-Dimethylhydrazine		57-14-7
U099	1,2-Dimethylhydrazine		540-73-8
U101	2,4-Dimethylphenol		105-67-9
U102	Dimethyl phthalate		131-11-3
U103	Dimethyl sulfate		77-78-1
U105	2,4-Dinitrotoluene		121-14-2
U106	2,6-Dinitrotoluene		606-20-2
U107	Di-n-octyl phthalate		117-84-0
U108	1,4-Dioxane		123-91-1
U109	1,2-Diphenylhydrazine		122-66-7
U110	Dipropylamine (I)		142-84-7

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U111	Di-n-propylnitrosamine		621-64-7
U403	Disulfiram.		97-77-8
U041	Epichlorohydrin		106-89-8
U390	EPTC.		759-94-4
U001	Ethanal (I)		75-07-0
U174	Ethanamine, N-ethyl-N-nitroso-		55-18-5
U404	Ethanamine, N,N-diethyl		121-44-8
U155	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-		91-80-5
U067	Ethane, 1,2-dibromo-		106-93-4
U076	Ethane, 1,1-dichloro-		75-34-3
U077	Ethane, 1,2-dichloro-		107-06-2
U131	Ethane, hexachloro-		67-72-1
U024	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-		111-91-1
U117	Ethane, 1,1'-oxybis-(I)		60-29-7
U025	Ethane, 1,1'-oxybis[2-chloro-		111-44-4
U184	Ethane, pentachloro-		76-01-7
U208	Ethane, 1,1,1,2-tetrachloro-		630-20-6
U209	Ethane, 1,1,2,2-tetrachloro-		79-34-5
U218	Ethanethioamide		62-55-5
U410	Ethanimidothioic acid, N,N'-[thiobis[(methylimino)carbonyloxy]]bis-, dimethyl ester		59669-26-0
U394	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester.		30558-43-1
U226	Ethane, 1,1,1-trichloro-		71-55-6
U227	Ethane, 1,1,2-trichloro-		79-00-5
U359	Ethanol, 2-ethoxy-		110-80-5
U173	Ethanol, 2,2'-(nitrosoimino)bis-		1116-54-7
U395	Ethanol, 2,2'-oxybis-, dicarbamate.		5952-26-1
U004	Ethanone, 1-phenyl-		98-86-2
U043	Ethene, chloro-		75-01-4
U042	Ethene, (2-chloroethoxy)-		110-75-8
U078	Ethene, 1,1-dichloro-		75-35-4
U079	Ethene, 1,2-dichloro-, (E)-		156-60-5
U210	Ethene, tetrachloro-		127-18-4
U228	Ethene, trichloro-		79-01-6
U112	Ethyl acetate (I)		141-78-6
U113	Ethyl acrylate (I)		140-88-5
U238	Ethyl carbamate (urethane)		51-79-6
U117	Ethyl ether (I)		60-29-7
U114	Ethylenebisdithiocarbamic acid, salts & esters		1111-54-6
U067	Ethylene dibromide		106-93-4
U077	Ethylene dichloride		107-06-2
U359	Ethylene glycol monoethyl ether		110-80-5
U115	Ethylene oxide (I,T)		75-21-8
U116	Ethylenethiourea		96-45-7
U076	Ethylidene dichloride		75-34-3
U118	Ethyl methacrylate		97-63-2
U119	Ethyl methanesulfonate		62-50-0
U407	Ethyl Ziram.		14324-55-1

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U396	Ferbam.		14484-64-1
U120	Fluoranthene		206-44-0
U122	Formaldehyde		50-00-0
U123	Formic acid (C,T)		64-18-6
U124	Furan (I)		110-00-9
U125	2-Furancarboxaldehyde (I)		98-01-1
U147	2,5-Furandione		108-31-6
U213	Furan, tetrahydro-(I)		109-99-9
U125	Furfural (I)		98-01-1
U124	Furfuran (I)		110-00-9
U206	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-,D-		18883-66-4
U206	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-.carbonyl]amino]-		18883-66-4
U126	Glycidylaldehyde		765-34-4
U163	Guanidine, N-methyl-N'-nitro-N-nitroso-		70-25-7
U127	Hexachlorobenzene		118-74-1
U128	Hexachlorobutadiene		87-68-3
U130	Hexachlorocyclopentadiene		77-47-4
U131	Hexachloroethane		67-72-1
U132	Hexachlorophene		70-30-4
U243	Hexachloropropene		1888-71-7
U133	Hydrazine (R,T)		302-01-2
U086	Hydrazine, 1,2-diethyl-		1615-80-1
U098	Hydrazine, 1,1-dimethyl-		57-14-7
U099	Hydrazine, 1,2-dimethyl-		540-73-8
U109	Hydrazine, 1,2-diphenyl-		122-66-7
U134	Hydrofluoric acid (C,T)		7664-39-3
U134	Hydrogen fluoride (C,T)		7664-39-3
U135	Hydrogen sulfide		7783-06-4
U135	Hydrogen sulfide H2S		7783-06-4
U096	Hydroperoxide, 1-methyl-1-phenylethyl-(R)		80-15-9
U116	2-Imidazolidinethione		96-45-7
U137	Indeno[1,2,3-cd]pyrene		193-39-5
U375	3-Iodo-2-propynyl n-butylcarbamate.		55406-53-6
U396	Iron, tris(dimethylcarbamodithioato-S,S')-,		14484-64-1
U190	1,3-Isobenzofurandione		85-44-9
U140	Isobutyl alcohol (I,T)		78-83-1
U141	Isosafrole		120-58-1
U142	Kepone		143-50-0
U143	Lasiocarpine		303-34-4
U144	Lead acetate		301-04-2
U146	Lead, bis(acetato-O)tetrahydroxytri-		1335-32-6
U145	Lead phosphate		7446-27-7
U146	Lead subacetate		1335-32-6
U129	Lindane		58-89-9
U163	MNNG		70-25-7
U147	Maleic anhydride		108-31-6
U148	Maleic hydrazide		123-33-1
U149	Malononitrile		109-77-3
U150	Melphalan		148-82-3

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U151	Mercury		7439-97-6
U384	Metam Sodium.		137-42-8
U152	Methacrylonitrile (I, T)		126-98-7
U092	Methanamine, N-methyl-(I)		124-40-3
U029	Methane, bromo-		74-83-9
U045	Methane, chloro-(I, T)		74-87-3
U046	Methane, chloromethoxy-		107-30-2
U068	Methane, dibromo-		74-95-3
U080	Methane, dichloro-		75-09-2
U075	Methane, dichlorodifluoro-		75-71-8
U138	Methane, iodo-		74-88-4
U119	Methanesulfonic acid, ethyl ester		62-50-0
U211	Methane, tetrachloro-		56-23-5
U153	Methanethiol (I, T)		74-93-1
U225	Methane, tribromo-		75-25-2
U044	Methane, trichloro-		67-66-3
U121	Methane, trichlorofluoro-		75-69-4
U036	4,7-Methano-1H-indene,1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-		57-74-9
U154	Methanol (I)		67-56-1
U155	Methapyrilene		91-80-5
U142	1,3,4-Metheno-2H-cyclobuta [cd]pentalen-2-one,1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-		143-50-0
U247	Methoxychlor		72-43-5
U154	Methyl alcohol (I)		67-56-1
U029	Methyl bromide		74-83-9
U186	1-Methylbutadiene (I)		504-60-9
U045	Methyl chloride (I,T)		74-87-3
U156	Methyl chlorocarbonate (I,T)		79-22-1
U226	Methyl chloroform		71-55-6
U157	3-Methylcholanthrene		56-49-5
U158	4,4'-Methylenebis(2-chloroaniline)		101-14-4
U068	Methylene bromide		74-95-3
U080	Methylene chloride		75-09-2
U159	Methyl ethyl ketone (MEK) (I,T)		78-93-3
U160	Methyl ethyl ketone peroxide (R,T)		1338-23-4
U138	Methyl iodide		74-88-4
U161	Methyl isobutyl ketone (I)		108-10-1
U162	Methyl methacrylate (I,T)		80-62-6
U161	4-Methyl-2-pentanone (I)		108-10-1
U164	Methylthiouracil		56-04-2
U010	Mitomycin C		50-07-7
U365	Molinate.		2212-67-1
U059	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6 ,8,11-trihydroxy-1-methoxy-, (8S-cis)-		20830-81-3
U167	1-Naphthalenamine		134-32-7
U168	2-Naphthalenamine		91-59-8
U026	Naphthalenamine, N,N'-bis(2-chloroethyl)-		494-03-1

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Waste Code	Waste Description	Hazard Code	CAS No.
U165	Naphthalene		91-20-3
U047	Naphthalene, 2-chloro-		91-58-7
U166	1,4-Naphthalenedione		130-15-4
U236	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-...dimethyl [1,1'-biphenyl]-4,4'-diyl)bis(azo)bis [5-amino-4-hydroxy]-, tetrasodium salt		72-57-1
U279	1-Naphthalenol, methylcarbamate.		63-25-2
U166	1,4-Naphthoquinone.		130-15-4
U167	alpha-Naphthylamine		134-32-7
U168	beta-Naphthylamine		91-59-8
U217	Nitric acid, thallium(1+) salt		10102-45-1
U169	Nitrobenzene (I,T)		98-95-3
U170	p-Nitrophenol		100-02-7
U171	2-Nitropropane (I,T)		79-46-9
U172	N-Nitrosodi-n-butylamine		924-16-3
U173	N-Nitrosodiethanolamine		1116-54-7
U174	N-Nitrosodiethylamine		55-18-5
U176	N-Nitroso-N-ethylurea		759-73-9
U177	N-Nitroso-N-methylurea		684-93-5
U178	N-Nitroso-N-methylurethane		615-53-2
U179	N-Nitrosopiperidine		100-75-4
U180	N-Nitrosopyrrolidine		930-55-2
U181	5-Nitro-o-toluidine		99-55-8
U193	1,2-Oxathiolane, 2,2-dioxide		1120-71-4
U058	2H-1,3,2-Oxazaphosphorin-2-amine,...N,N-bis(2-chloroethyl)te trahydro-, 2-oxide		50-18-0
U115	Oxirane (I,T)		75-21-8
U126	Oxiranecarboxyaldehyde		765-34-4
U041	Oxirane, (chloromethyl)-		106-89-8
U182	Paraldehyde		123-63-7
U391	Pebulate.		1114-71-2
U183	Pentachlorobenzene		608-93-5
U184	Pentachloroethane		76-01-7
U185	Pentachloronitrobenzene (PCNB)		82-68-8
U161	Pentanol, 4-methyl-		108-10-1
U186	1,3-Pentadiene (I)		504-60-9
U187	Phenacetin		62-44-2
U188	Phenol		108-95-2
U048	Phenol, 2-chloro-		95-57-8
U039	Phenol, 4-chloro-3-methyl-		59-50-7
U081	Phenol, 2,4-dichloro-		120-83-2
U082	Phenol, 2,6-dichloro-		87-65-0
U089	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-		56-53-1
U101	Phenol, 2,4-dimethyl-		105-67-9
U052	Phenol, methyl-		1319-77-3
U132	Phenol, 2,2'-methylenebis[3,4,6-trichloro-		70-30-4
U411	Phenol, 2-(1-methylethoxy)-, methylcarbamate.		114-26-1
U170	Phenol, 4-nitro-		100-02-7
U150	L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-		148-82-3
U145	Phosphoric acid, lead(2+) salt (2:3)		7446-27-7

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Waste Code	Waste Description	Hazard Code	CAS No.
U087	Phosphorodithioic acid, O,O-diethyl S-methyl ester		3288-58-2
U189	Phosphorus sulfide (R)		1314-80-3
U190	Phthalic anhydride		85-44-9
U191	2-Picoline		109-06-8
U179	Piperidine, 1-nitroso-		100-75-4
U400	Piperidine, 1,1'-(tetrathiodicarbonothioyl)-bis-		120-54-7
U383	Potassium dimethyldithiocarbamate.		128-03-0
U378	Potassium n-hydroxymethyl-n-methyldi-thiocarbamate.		51026-28-9
U377	Potassium n-methyldithiocarbamate.		137-41-7
U192	Pronamide		23950-58-5
U194	1-Propanamine (I,T)		107-10-8
U111	1-Propanamine, N-nitroso-N-propyl-		621-64-7
U110	1-Propanamine, N-propyl-(I)		142-84-7
U066	Propane, 1,2-dibromo-3-chloro-		96-12-8
U083	Propane, 1,2-dichloro-		78-87-5
U149	Propanedinitrile		109-77-3
U171	Propane, 2-nitro-(I,T)		79-46-9
U027	Propane, 2,2'-oxybis[2-chloro-		108-60-1
U193	1,3-Propane sultone		1120-71-4
U235	1-Propanol, 2,3-dibromo-, phosphate (3:1)		126-72-7
U140	1-Propanol, 2-methyl-(I,T)		78-83-1
U002	2-Propanone (I)		67-64-1
U007	2-Propenamide		79-06-1
U084	1-Propene, 1,3-dichloro-		542-75-6
U243	1-Propene, 1,1,2,3,3,3-hexachloro-		1888-71-7
U009	2-Propenenitrile		107-13-1
U152	2-Propenenitrile, 2-methyl-(I,T)		126-98-7
U008	2-Propenoic acid (I)		79-10-7
U113	2-Propenoic acid, ethyl ester (I)		140-88-5
U118	2-Propenoic acid, 2-methyl-, ethyl ester		97-63-2
U162	2-Propenoic acid, 2-methyl-, methyl ester (I,T)		80-62-6
U373	Propham.		122-42-9
U411	Propoxur.		114-26-1
U194	n-Propylamine (I,T)		107-10-8
U083	Propylene dichloride		78-87-5
U387	Prosulfocarb.		52888-80-9
U148	3,6-Pyridazinedione, 1,2-dihydro-		123-33-1
U196	Pyridine		110-86-1
U191	Pyridine, 2-methyl-		109-06-8
U237	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-		66-75-1
U164	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-		56-04-2
U180	Pyrrolidine, 1-nitroso-		930-55-2
U200	Reserpine		50-55-5
U201	Resorcinol		108-46-3
U202	Saccharin, & salts		181-07-2
U203	Safrole		94-59-7
U204	Selenious acid		7783-00-8
U204	Selenium dioxide		7783-00-8
U205	Selenium sulfide		7488-56-4

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U205	Selenium sulfide SeS2 (R,T)		7488-56-4
U376	Selenium, tetrakis(dimethyldithiocarbamate).		144-34-3
U015	L-Serine, diazoacetate (ester)		115-02-6
U379	Sodium dibutyldithiocarbamate.		136-30-1
U381	Sodium diethyldithiocarbamate.		148-18-5
U382	Sodium dimethyldithiocarbamate.		128-04-1
U206	Streptozotocin		18883-66-4
U277	Sulfallate.		95-06-7
U103	Sulfuric acid, dimethyl ester		77-78-1
U189	Sulfur phosphide (R)		1314-80-3
U402	Tetrabutylthiuram disulfide.		1634-02-2
U207	1,2,4,5-Tetrachlorobenzene		95-94-3
U208	1,1,1,2-Tetrachloroethane		630-20-6
U209	1,1,2,2-Tetrachloroethane		79-34-5
U210	Tetrachloroethylene		127-18-4
U213	Tetrahydrofuran (I)		109-99-9
U401	Tetramethylthiuram monosulfide.		97-74-5
U214	Thallium(I) acetate		563-68-8
U215	Thallium(I) carbonate		6533-73-9
U216	Thallium(I) chloride		7791-12-0
U216	Thallium chloride Tlcl		7791-12-0
U217	Thallium(I) nitrate		10102-45-1
U366	2H-1,3,5-Thiadiazine-2-thione, tetrahydro-3,5-dimethyl-		533-74-4
U218	Thioacetamide		62-55-5
U410	Thiodicarb.		59669-26-0
U153	Thiomethanol (I,T)		74-93-1
U402	Thioperoxydicarbonic diamide, tetrabutyl.		1634-02-2
U403	Thioperoxydicarbonic diamide, tetraethyl.		97-77-8
U244	Thioperoxydicarbonic diamide [(H2N)C(S)]2S2,		137-26-8
	tetramethyl-		
U409	Thiophanate-methyl.		23564-05-8
U219	Thiourea		62-56-6
U244	Thiram		137-26-8
U220	Toluene		108-88-3
U221	Toluenediamine		25376-45-8
U223	Toluene diisocyanate (R,T)		26471-62-5
U328	o-Toluidine		95-53-4
U353	p-Toluidine		106-49-0
U222	o-Toluidine hydrochloride		636-21-5
U389	Triallate.		2303-17-5
U011	1H-1,2,4-Triazol-3-amine		61-82-5
U227	1,1,2-Trichloroethane		79-00-5
U228	Trichloroethylene		79-01-6
U121	Trichloromonofluoromethane		75-69-4
U404	Triethylamine.		121-44-8
U234	1,3,5-Trinitrobenzene (R,T)		99-35-4
U182	1,3,5-Trioxane, 2,4,6-trimethyl-		123-63-7
U235	Tris(2,3-dibromopropyl) phosphate		126-72-7
U236	Trypan blue		72-57-1

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Waste Code	Waste Description	Hazard Code	CAS No.
U237	Uracil mustard		66-75-1
U176	Urea, N-ethyl-N-nitroso-		759-73-9
U177	Urea, N-methyl-N-nitroso-		684-93-5
U385	Vernolate.		1929-77-7
U043	Vinyl chloride		75-01-4
U248	Warfarin, & salts, when present at concentrations of 0.3% or less		181-81-2
U239	Xylene (I)		1330-20-7
U200	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-		50-55-5
U407	Zinc, bis(diethylcarbamodithioato-S,S')-		14324-55-1
U249	Zinc phosphide Zn3P2, when present at concentrations of 10% or less		1314-84-7
001D	Copper		
003D	Zinc		
001S	Aflatoxin		
001K	Residues, including emission control sludges, from the production process and packaging of 4,4' Methylenebis (2 chloroaniline)	(T)	
002K	Wash acids generated after the effective date of these rules from the production of 3,3' - Dichlorobenzidine and still bottoms from the recovery of these acids, excluding wash acids that are recycled or any materials that are reclaimed from the wash acids and are used beneficially	(T)	
001U	Actinomycin D		
002U	Allyl chloride		
003U	2-aminoanthraquinone		
004U	Aminoazobenzene		
005U	0-aminoazotoluene		
006U	4-aminobiphenyl		
007U	3-amino-9-ethyl carbazole		
157U	3-amino-9-ethyl carbazole hydrochloride		
008U	1-amino-2-methyl anthraquinone		
009U	Anilazine		
158U	Aniline hydrochloride		
011U	o-Anisidine		
012U	o-Anisidine hydrochloride		
013U	Antimony (when in the form of particles 100 microns or less)		
014U	Antimycin A		
147U	Azinphosethyl		
148U	Azinphosmethyl		
159U	Azobenzene		
015U	Barban		
016U	Bendiocarb		
017U	Benomyl		
020U	Bromoxynil		
160U	1,3-Butadiene		
161U	Butyl benzl phthalate		
021U	2-(ptertButylphenoxy)isopropyl 2-chloroethyl sulfite		
022U	Captafol		
023U	Captan		

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Waste Code	Waste Description	Hazard Code	CAS No.
024U	Carbaryl		
025U	Carbofuran		
027U	Carbophenothion		
028U	Chloramines		
152U	Chlorfenuinphos		
029U	Chloropyrifos		
030U	Chlorinated dibenzofurans (other than those listed in Table 202)		
031U	Chlorinated dioxins (other than those listed in Table 202)		
032U	Chlorine gas		
033U	2-Chloroethanol		
034U	3-(Chloromethyl) pyridine hydrochloride		
150U	pchlorophenol		
162U	1-chloro-4-phenoxybenzene		
036U	4-chloromphenylenediamine		
037U	4-chloroophenylenediamine		
038U	Chloroprene		
163U	1-chloropropene		
151U	5-chloroototoluidene		
040U	Clonitralid		
041U	Cobalt (when in the form of particles 100 microns or less)		
042U	Coumaphos		
043U	pCresidine		
044U	Crotoxyphos		
046U	Cycloheximide		
164U	P,P' DDE		
047U	Demeton		
048U	2,4-Diaminoanisole sulfate		
049U	4,4'-Diaminodiphenyl ether		
050U	2,4-Diaminotoluene		
051U	Diazinon		
052U	Dichlone		
054U	Dichlorvos		
055U	Dichrotophos		
056U	Diethyl sulfate		
165U	N,N'-Diethylthiourea		
057U	Dinocap		
058U	Dioxathion		
059U	EPN		
166U	1,2-Epoxybutane		
061U	Ethion		
063U	Fensulfothion		
064U	Fenthion		
065U	Fluchloralin		
068U	Hexamethyl phosphoramide		
070U	Hydroquinone		
071U	N-(2-Hydroxyethyl) ethyleneimine		
072U	Hypochlorite		
073U	Isonicotinic acid hydrazine		
167U	Kanechlor C		

REVISED APPENDIX A
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Waste Code	Waste Description	Hazard Code	CAS No.
074U	Ketene		
075U	Lactonitril		
076U	Leptophos		
077U	Lithium and compounds		
078U	Malachite green		
079U	Malathion		
080U	Mestranol		
152U	Methacrylonitrile		
082U	4,4'-Methylenebis(2methylaniline)		
083U	4,4'-Methylenebis(N,Ndimethylaniline)		
086U	1-Methylnaphthalene		
088U	Mevinphos		
089U	Mexacarbate		
090U	Mirex		
092U	Monocrotophos		
093U	Mustard gas		
094U	Naled		
095U	1,5-Napthalenediamine		
096U	Nickel (when in the form of particles 100 microns or less)		
097U	Niridazole		
098U	Nithiazide		
099U	5-Nitroacenaphthene		
100U	Nitrooanisidine		
101U	Nitrobiphenyl		
102U	Nitrofen		
103U	N-(4-(5-nitro-2-furanyl)2-thiazolyl)acetamide		
104U	Nitrogen mustard		
106U	p-Nitrosodiphenylamine		
168U	N-Nitrosomethylvinylamine		
108U	N-nitroso-N-phenylhydroxylamine, ammonium salt		
169U	Octachlorostyrene		
110U	Oxydemetonmethyl		
111U	Paraquat		
112U	Peroxyacetic acid		
113U	Phenazopyridine hydrochloride		
114U	Phenesterin		
115U	Phenobarbitol		
116U	Phenytoin		
117U	Phenytoin sodium		
118U	Phosazetim		
119U	Phosmet		
120U	Phosphamidon		
121U	Piperonyl sulfoxide		
122U	Polybrominated biphenyls (PBB)		
124U	Propiolactone		
127U	Propylthiouracil		
128U	Rotenone		
129U	Semicarbazide		
170U	Semicarbazide hydrochloride		

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Michigan Disposal Waste Treatment Plant
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Waste Code	Waste Description	Hazard Code	CAS No.
153U	Sodium fluoroacetate		
131U	Styrene		
132U	Sulfallate		
134U	TDE		
135U	TEPP		
136U	Terbufos		
137U	Tetrachlorvinphos		
138U	4,4'-Thiodianiline		
139U	o-Toluidine		
140U	Triaryl phosphate esters		
154U	bis(Trinbutyl tin) oxide		
171U	Tributyltin (and other salts and esters)		
172U	1,2,3-Trichlorobenzene		
173U	1,2,4-Trichlorobenzene		
141U	Trichlorfon		
142U	Trifluralin		
143U	2,4,5-Trimethylaniline		
144U	Triamethylphosphate		
174U	Urethane		
175U	Vinyl bromide		
155U	Vinylidene chloride		
146U	Ziram		
	Aroclor 1016		
	Aroclor 1221		
	Aroclor 1232		
	Aroclor 1242		
	Aroclor 1254		
	Aroclor 1260		

APPENDIX B

FINGERPRINT AND SUPPLEMENTARY ANALYTICAL PARAMETERS/RATIONALE

Color Comparison Procedure : This procedure evaluates the color of waste samples/information presented for pre-approval and compares the color of incoming loads of waste.

- Pre-Approval Evaluation Step

  During our pre-approval waste evaluation process (both at initial evaluation and annual, or intermediate re-approval), we will create a written record and an electronic record of the color of the waste presented by the generator for evaluation. In addition, Michigan Disposal Waste Treatment Plant will photograph a portion of the waste supplied by the generator or obtain a photograph for wastes not sampled. The hard copy record (written on the Laboratory Characterization Record (LCR) form) and the photograph will be kept in the permanent approval file. The electronic record will be stored in the waste approval computer system database. The hard copy record and electronic record are to be identical, except as otherwise provided below.

  The color descriptor will be derived from the descriptive information provided by the generator on the Generator Waste Characterization (GWC) form and by Michigan Disposal Waste Treatment Plant's laboratory staff. If the generator's description differs from our staff's evaluation of color, the generator will be contacted to resolve the differing descriptions. While any descriptor can be used, for most purposes, a descriptor from the list of standard common waste colors noted below which most closely matches the sample color will be preferred. In cases where a complex (such as mixed), or variable color is expected, the electronic record can direct the system user to refer to the hard copy record for a definitive description of the color expected.

Some wastes will be excluded from the color evaluation system, because color is irrelevant or is naturally of great variability. Included are the following general waste types:

a. Empty drums;

b. Construction debris;

c. Tanks (whole or cut up); and

d. Equipment, such as machinery, pumps, and piping.

Generators are not required to provide samples of such wastes. A photograph is not required and "not applicable" is encoded into the electronic record.

Surface impoundment cleanup and site remediation activity wastes can be expected to exhibit considerable color variability. Sludges in impoundments may be stratified, oxidized, or reduced, or may have otherwise been subjected to color-changing conditions. These activities also often involve removal of various soil types from various depths. Because of this expected variability, the electronic color field will reference the hard copy record which will then be reviewed for more descriptive information.

- Waste Reception Step

Upon arrival of a load of waste at the site, the color comparison will be performed on the representative sample of waste collected for laboratory evaluation.

The previously-issued approval number is entered into the computer system which responds by displaying the original pre-approval color descriptor, a notation requiring review of the approval file for complete information, or a "not applicable" notation. In addition, the system will offer the opportunity to enter "Y" (for "yes"), or "N" (for "no") indicating agreement or disagreement of the arriving waste color with the pre-approval color description. Entry of a "yes" response will allow acceptance of the load. Entry of a "no" response, without an acceptable explanation by the generator, will cause rejection of the load. A "yes" response is entered for a "not applicable" color descriptor.

If the incoming load sample does not conform to the pre-approval descriptor (as displayed on the screen, or explained in the approval file), a discrepancy reconciliation procedure is initiated before a final decision is made to accept or reject the shipment. All observations made, contacts made, conversations held, and action taken during the reconciliation process will be recorded, in writing, and placed in the approval file at the conclusion of the process, irrespective of whether the load is accepted or rejected.

As part of the reconciliation process, the photograph of the pre-approval sample will be reviewed, if available. If the photograph matches the incoming sample, a "yes" response is entered into the system, indicating the reconciliation of the discrepancy, which ends the process.

If comparison with the photographic record is inconclusive, the generator (or his representative) is contacted to further investigate the discrepancy. The situation is explained to the generator and an explanation is requested. If the generator indicates that a process change has taken place, if the waste contains new or different substances, or if the shipment includes waste from a process or source not described on the original approval, the load will be rejected. If none of these conditions are present and if the generator offers a reasonable explanation for a color change, the load may be accepted.

- Common Waste Color Descriptions

a. Black;	j. Light Red;
b. Brown;	k. Orange;
c. Gray;	l. Light Blue;
d. Gray/Brown;	m. Dark Blue;
e. Gray/Black;	n. Light Green;
f. Black/Brown;	o. Dark Green;
g. Purple;	p. Yellow;
h. Pink;	q. White;
i. Dark Red;	r. Colorless; and
	s. Beige.

Consistency : A comparison of the incoming wastes consistency of originally-approved material.

- Codes are as follows:

1 - Dust;
2 - Solid;
3 - Semi-Solid;
4 - Sludge; and
5 - Liquid.

If a consistency change is noted, waste will be rejected unless the generator can satisfactorily explain the consistency.

pH : A comparison of the pH of the incoming waste with the pH range of the originally approved material is performed. If the pH is outside the range, the generator is contacted for an explanation. If a reasonable explanation is provided, the waste is accepted; if not, it is rejected.

Incidental Odor Inspection : Any unusual odor, detected in the routine laboratory handling of a sample such as sulfide or unexpected solvent odors, requires rejection of the load unless the generator can satisfactorily explain the unusual odor.

Reactivity Test : A determination that the waste does not react violently during processing. In the course of this test, water reactivity, acid reactivity, base reactivity, air reactivity, and shock sensitivity are all addressed. The test method is as follows:

Test Materials for:

a. Water Reactivity : Water;

b. Acid Reactivity : 20-percent HCl;

c. Base Reactivity : 20-percent NaOH;

d. Air Reactivity : Not accepted; and

e. Shock Sensitivity : Not accepted.

Ten milliliters (mls) or equal volume of waste is mixed rapidly with ten mls of test material solution in a beaker, the waste is compatible with the process if no incompatible waste reaction occurs as defined in 40 Code of Federal Regulations (CFR) 264, Appendix B, paragraph 1.

Compatibility Test : a. A determination that the wastes being accepted are compatible with the wastes that are present in the tanks or sludge box. The test method is as follows:

A disposable container (mock tank) is used to simulate treatment in the actual treatment tank. The mixture is started each working day by grabbing a sample of the waste left in the disposable container from the previous day. Aliquots (minimum of approximately 5 ml) of this sample are added to the mock tank for each gallon of waste present in tanks. As prospective waste arrives at the laboratory/office building, aliquots of the receiving sample are rapidly added to the appropriate mock tank. And, as treatment reagents are added to the actual treatment tanks, the equivalent amount is added to the mock tank. The mixture is stirred and the waste may be accepted if no incompatible waste reaction occurs, as defined in 40 CFR 264, Appendix V, paragraph 1; and

b. A determination that the waste is compatible with the materials of construction of the tanks at Michigan Disposal Waste Treatment Plant. If a waste has pH of less than (<) 1.5 or greater than (>) 12.5 and will be held more than eight hours prior to processing, the waste may be incompatible with the tanks at Michigan Disposal Waste Treatment Plant. When this situation occurs, an assessment will be made as to the waste's compatibility with the tank's materials of construction and special handling requirements.

Flash Point/Ignitability : Used to determine the flash point of a liquid to verify approval under limits of acceptable only above 90°F flashpoint.

Test Methods Liquids:

a. Setaflash Closed Cup Tester

American Society for Testing and Materials (ASTM) Standard D-3278-78;

b. Pensky-Martin Closed Cup Tester

ASTM D-93-79 or D-93-80; or

c. Sludges/Solids

Ten plus or minus (±) 0.1 grams of waste is placed in a small container. Ignition is attempted with a match for ten seconds. If ignition occurs and the waste burns vigorously and persistently, the waste is not acceptable for treatment.

Waste with a flashpoint below 90-degrees Fahrenheit (°F) is not acceptable for treatment.

40 CFR Part 261, Appendix VII : The hazardous constituents for which a waste is listed. The Appendix VII constituents are presumed to be present by Michigan Disposal Waste Treatment Plant personnel, and the waste handled accordingly. Specific information on a particular waste stream is normally supplied by the generator, based either on analysis or from the 40 CFR 261 background documents which describe the basis of listing in accordance with 264.13(a)(2). If analysis is performed by Michigan Disposal Waste Treatment Plant (on-site or by contract laboratory), one of the following methods is used, depending on the constituent of interest:

a. Method 6010 (Inductively Coupled Plasma (ICP)) or Method 7000 Series (Graphite Furnace Atomic Absorption);

b. Methods 8010, 8015, 8020, 8040, 8080, 8090 (Gas Chromatograph (GC));

c. Methods 8240 and 8270 GC/Mass Spectrophotometer (MS); and

d. Method 9010 (Cyanide (CN)).

These methods are provided in United States Environmental Protection Agency "Test Methods for Evaluating Solid Waste," SW-846, Third Edition, November 1986 (United States Environmental Protection Agency (USEPA), November 1986).

Toxicity Characteristic Leachate Procedure (TCLP)	:	A test to determine if a solid waste meets or exceeds the maximum concentrations extractable of contaminants listed in 40 CFR 261.24, Table I. The test methods to be used are described in 40 CFR Part 261, Appendix II, Method 1311. Equivalent methods must be approved by the administrator under the procedures set forth in 40 CFR 260.10 and 260.21.
Total Metals	:	A test to determine the total metal (i.e., constituent concentration in waste) content of wastes (USEPA SW-846, methods 6000/7000).
Cyanide	:	A determination that the waste does not meet the criteria set forth in 40 CFR 261.23(a)(5). The test method to be used ia the Total and Amenable Cyanide Method 9010, found in SW-846 (Third Edition) or Method 7.3.3.2 for Reactive CN. Untreated waste containing more than 250 parts per million of reactive or releasable CN is not accepted for treatment.

Sulfide	:	A test to determine the specific rate of release of hydrogen sulfide in waste upon contact with an aqueous acid (SW-846, Section 7.3.4.2).
Total Organic Halides (TOX)	:	This method (USEPA 9020) is used to determine the concentration of all organic halides containing chlorine, bromine, or iodine. Note that fluorine-containing species cannot be determined by this method.
Acidity	:	These methods(SW-846 9040, 9041A, 9045A, 9045B) are used to measure the acid content in waste in either mg/L (for aqueous samples) or mg/kg (for solid samples).
Polychlorinated Biphenyls (PCBs)	:	This method (SW-846 8080) is used to detect PCB concentrations in excess of the Michigan Disposal Waste Treatment Plant - permitted limit of 50 parts per million (ppm). PCB analysis will be conducted on all wastes that contain oily residue, or are suspected of containing PCBs.
Volatile Organic Compounds	:	A test to determine the total concentration of volatile organic compounds (VOCs) in waste matrices. The appropriate analytical methods are 8010, 8015, 8020 or 8240 from SW-846 (USEPA, November 1986). Only the constituents for which the waste was listed are analyzed.
Oxidizer Screen	:	Potassium iodide (KI) paper is used to determine the presence of organic peroxides or other oxygen donors in aqueous wastes.
Radiation Screen	:	A sample is passed near the detector window of a geiger counter, and the reading of the meter is noted and compared to the background reading.
Paint Filter Test	:	This method (USEPA 9095) is used to indicate if free liquid is present in a waste, if this is not apparent by inspection.

Hexavalent Chromium	:	This method is used to screen for the presence or absence of hexavalent chromium (Cr+6). The waste is screened using either a Hach® type chromate test kit or equivalent, or USEPA Method 7196 in order to ensure that no Cr+6 is present due to its higher toxicity/solubility.
Suspended Solids	:	Is used to determine suspended solid content of aqueous wastes or sludge for the purpose of determining wastewater or non-wastewater categories under 40 CFR Part 268. This is performed using generator-provided information/analysis or from data obtained from the preparation of TCLP extracts (Method 1311).
Treatability	:	A treatability study will be done at the pre-approval step for any waste streams that: a. Are of a waste type not treated at Michigan Disposal Waste Treatment Plant before; or b. Are coming from a process not treated at Michigan Disposal Waste Treatment Plant before; or c. Have higher levels of constituents not treated at Michigan Disposal Waste Treatment Plant before; or d. Have waste codes not previously treated at Michigan Disposal Waste Treatment Plant before. A treatability study is a laboratory bench scale trial of treating the waste using Michigan Disposal Waste Treatment Plant methods for processing. The analysis is performed to determine if the LDR Standards have been met after treatment. If the waste cannot be treated to the appropriate limits, the waste will be rejected.

To begin a treatability study, a chemist reviews the analytical data on the waste stream and determines the type or types of treatment that will be required to achieve the LDR treatment standards. The treatment logic and the types of treatment are shown in table 1, and figures 1, 2, 3 and 4. The greater the number of constituents requiring treatment in the waste, the greater the likelihood that a treatment train must be performed to treat each underlying hazardous constituent to the standard. A treatment train is a series of different treatment reactions performed in sequence to destroy or make insoluble each constituent of concern. Organic constituents are generally destroyed with oxidants and metal constituents are generally reacted to become part of stable, insoluble compounds (this is the chemical fixation or stabilization reaction). The bench scale test simply involves adding the appropriate oxidants, reductants and stabilizing agents in the appropriate series, mixing between steps (mixing is performed either manually with a stir stick or mechanically with a blender), allowing the treated tests to cure (i.e., time allowed for the reactions to run to completion) and analyzing the test treatment to determine if the standards were met. Customers are billed commensurate with the level of effort and quantity of reagents needed to treat their waste to the standards. One step stabilization treatments may involve as little as one part stabilizing agent to five parts waste. Treatment trains and difficult to treat wastes may involve waste to reagent ratios of 1:1 or greater. It should be noted that the treatments either destroy the constituents or characteristics or render them insoluble (unleachable).

ATTACHMENT 2

INSPECTION SCHEDULE

MICHIGAN DISPOSAL WASTE TREATMENT PLANT

GENERAL INSPECTION SCHEDULE

40 CFR 264.15b and MI Act 64 R504(1)c

Purpose:

The employee designated by the Owner or Operator as the Inspector will inspect the facility for malfunctions and deterioration, operator errors, and discharges which may be causing -- or may lead to -- (1) release of hazardous waste constituents to the environment or (2) a threat to human health. The Inspector conducts these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

Inspection Categories:

The Operator has developed and the Inspector follows a written schedule for inspecting:

1) Monitoring equipment

2) Safety and emergency equipment

3) Security devices and

4) Operating and structural equipment important to preventing, detecting, or responding to environmental or human health hazards.

Inspection schedule:

The inspection schedule is kept at the facility. The inspections are to be conducted at the times indicated below:

(1) Annual - 2nd Quarter of the year

(2) Monthly - Last operating week of the month

(3) Daily - Each day the facility is handling hazardous waste

Inspection Frequency:

The frequency of inspection is based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration, or malfunction, or any operator error goes undetected between inspections.

Inspection Requirements for Waste Handling and Storage areas:

As applicable to the facility, the inspection schedule meets the following requirements:

Areas subject to spills: (40CFR 264.15) Areas subject to spills, such as loading and unloading areas, are inspected daily when in use.

Container Storage Areas: (40 CFR 264.174) At least weekly, the inspector must inspect areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors. Containers stored in the container storage areas are inspected for signs or deterioration as required by 40 CFR 264.174.

Inspection Requirements for Tank Systems:

As applicable to the facility, the inspection schedule meets the following requirements for all tank systems for storing or treating hazardous wastes:

Containment and Detection of Releases: (40 CFR 264.193)

(c)(3)Leak detection devices for primary containment are checked to detect the failure of that structure or the presence of any release within 24 hours or at the earliest practicable time if it is not possible to detect a release within 24 hours. If the leak detection system fails to detect the failure of the primary containment structure or the presence of any release within 24 hour, MDWTP will demonstrate to the MDEQ that existing detection technologies or site conditions will not allow the dtection of a release within 24 hours.

(c)(4) Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within 24 hours or in as timely a manner as possible by following 264.193. If spilled or leaked waste and accumulated precipitaion cannot be removed from the secondary containment system within 24 hours, MDWTP will demonstrate to the DEQ that removal of the released waste or accumulated precipitation cannot be accomplished within 24 hours.

(f)(1)Aboveground piping without secondary containment is visually inspected for leaks on a daily basis. All such piping at the facility is provided secondary containment by the sloping concrete and blind trenches, therefore daily piping inspection is not mandatory but will be conducted as best management practice.

(f)(2) Welded flanges, welded joints, and welded connections without secondary containment are visually inspected for leaks on a daily basis.

(f)(3) Sealless or magnetic coupling pumps and sealless valves without secondary containment are inspected on a daily basis.

(f)(4) Pressurized aboveground piping systems with automatic shut-off (e.g. excess flow check valves, flow metering shutdown devices, loss of pressure actuated devices) that have no secondary containment are visually inspected on a daily basis. All such piping at the facility is provided secondary containment by the sloping concrete and blind trenches, therefore daily piping inspection is not mandatory but will be conducted as best management practice.

(i)(1)(2) For all tank systems without secondary containment meeting 264.193, annually conduct a leak test that meets the requirements of 264.191(b)(5) or other tank integrity method. The annual tank integrity assessment procedure is as follows:

1. Empty tanks completely
2. Thoroughly clean the tank interior with a high pressure water wash to remove solids
3. Perform a thorough visual inspection of the tank interior and exterior (to the extent possible for in-ground tanks) for cracks, evidence of leaks, and seam integrity.
4. Have a certified testing lab determine the shell thickness of all tanks. A copy of the test report must be attached to the inspection forms.
5. Make any necessary repairs and properly document completion of the repairs

Tank Inspections: 40 CFR 264.195

(a) Develop and follow best management practices for ensuring no overfilling of the tanks.

(b) At least once a day inspect aboveground portions of the tank system, data gathered from monitoring and leak detection equipment, and the area immediately surrounding the tank system.

(c) Proper operation of cathodic protection systems must be checked six months after installation and annually thereafter. All sources of impressed current must be inspected bimonthly (alternate months).(This item is not applicable at this time)

Inspection Records

The Inspector records inspections in an Inspection Log or Summary by compiling all completed Inspection Report forms into a binder kept onsite. These records are kept for at least three years from the date of inspection. These records, at a minimum, include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

Three Inspection Report Forms following this section are currently in use at the facility:

1) Daily Inspection Report

2) Monthly Inspection Report

3) Annual Inspection Report

These Inspection Report forms list and describe items to be examined at a specific frequency. On the reverse side of the form the inspection items and acceptable or unacceptable conditions for each inspection item are identified. A revised or improved version of any Inspection Report form may be implemented upon proper administrative change notification to Michigan Department of Natural Resources, Waste Management Division.

Inspection Response and Corrective Action

The operator remedies any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action is taken immediately.

If an unacceptable condition is detected, it is reported to the facility manager in charge at that time. The facility manager assigns responsibility for corrective action and a deadline by which corrective action has to be taken on the condition.

On subsequent daily inspections, the Inspector monitors the condition until the situation is completely rectified. Once it is rectified, the date and time that the correction was made is noted on all previous Reports mentioning the defect.

MICHIGAN DISPOSAL WASTE TREATMENT PLANT DAILY INSPECTION
MONITORING, OPERATIONAL, AND STRUCTURAL SYSTEMS

Date/Time: ______
Inspector: ______

DESCRIPTION (Quantity)	LOCATION	ACCEPTABLE?		CORRECTIVE ACTION (Who, What)	COMPLETED (When)
		Yes	No		
RTO (East)					
Operating records	Plant				
pH of scrubber	Plant				
Caustic level	Plant				
Baghouse	Plant				
Lime/Waste Storage Silos (6)					
Spills -- None	Plant				
Leaks -- None	Plant				
Operational -- Fitness	Plant				
Baghouse/Carbon System (West)					
Operational -- Fitness	Plant				
Treatment Tanks (7A, 7B, 8A, 8B, 9A, 9B, 10A, 10B)					
Spills -- None	Plant				
Leaks -- None	Plant				
Secondary containment	Plant				
Storage Tanks (Vertical 1B, 11, 12, 16-19, 25, 27) & Aboveground Piping					
Spills -- None	Plant				
Leaks -- None	Plant				
Hi-Level Indicators	Plant				
Impoundment Walls & Floor -- Integrity	Plant				
Processing Plant Building (1)					
Walls (6) -- Integrity	Plant				
Doors (4) -- Integrity	Plant				
Floors (2) -- Integrity	Plant				
Roofs (2) -- Integrity	Plant				
Pug Mills (2)					
Screw Feeders (2) Leaks--None	Plant				
Mixers (2) Leaks--None	Plant				
Discharge Conveyors (2) Leaks--None	Plant				
Pump Room (1)					
Spills -- None	Plant				
Leaks -- None	Plant				
Container Storage Areas (5)					
Spills -- None	Plant				
Leaks -- None	Plant				
Labels -- Complete & Readable	Plant				
Aisles -- 2' Clear	Plant				
Number of Containers N, E[1], W Bay[2], E Bay[2] -- 1,500 Maximum[3]	Plant				
Volume of Containers SE -- 181,800 Gallons Maximum	Plant				
Containers not damaged or deteriorating. No leaks.	Plant				
Trenches -- Empty (See definition of Empty* on the back)	Plant				
Pads -- Integrity	Plant				

NOTE: Daily rounds for site security are performed by the Security Guards.

[1]The East Container Storage Area may store 600 drums

[2]East Bay and West Bay refers to the East and West Truck Unloading/Loading Areas within the treatment plant. Each bay may store 100 drums

[3]The N, E, E Bay and W Bay may store a combined total of 1,500 drums. The storage limits on the ECSA and the E & W Bays are described in the footnotes above. The NCSA may store 1,500 drums.

INSPECTION CRITERIA

RTO (East)
Verify that the temperature and flow meters are recording and that the values are within the operating parameters
Check that the pH of the scrubber solution is within normal operating range.
Check the level in the caustic solution storage tank.
Check that the baghouse is operating within the normal range.

Lime/Waste Storage Silos (6)
Verify that there are no spills. Verify that there are no leaks. Inspect silos for any signs of deterioration or damage.

Baghouse/Carbon System (West)
Ascertain that the equipment is operating properly. Inspect for any emissions from bag houses. Check for vibrations at fan and blower housings.

Treatment Tanks (7A, 7B, 8A, 8B, 9A, 9B, 10A, 10B)
Verify that there are no spills. Verify that there are no leaks. Secondary containment pilot lights functional.

Storage Tanks (Vertical 1B, 11, 12, 16-19, 25, 27) & Aboveground Piping
Verify that there are no spills. Verify that there are no leaks.
Hi-Level Indicators: Verify that all units are operating.
Inspect impoundment walls and floor for leaks, cracks or accumulation of liquids.

Processing Plant Building (1)
Inspect walls, doors, floors, and roofs for signs of deterioration or damage. Verify that there are no leaks or cracks.
Inspect tracks on large doors to assure proper sliding and closing.

Pug Mills (2)
Inspect Screw Feeders for signs of leaks or spills.
Inspect pugmill for leaks or spills.
Inspect Discharge Conveyors for signs of leaks or spills.
Verify that units are operating satisfactorily.

Pump Room (1)
Verify that there are no spills. Verify that there are no leaks.

Container Storage Areas (5)
Verify that there are no spills. Inspect for leaks or cracks in dikes and the concrete or asphalt base.
Verify that labels are complete and readable. Verify that aisles have a clearance of a minimum of 2 feet.
Verify that the containers are closed (lids and bungs on securely) excepts when necessary to add or remove waste.
Verify that the number of containers in the N, E, W Bay and E Bay is at a maximum of 1,500. Verify that the volume of containers in the SECSA is at a maximum of 181,800 gallons.
Verify that trenches and sumps are empty*. Ascertain that the integrity of the containment system is satisfactory.
Verify that no containers show signs of deterioration or leaking.

*Trenches and sumps are "empty" if all wastes have been removed that can be removed using the practices commonly employed to remove material from trenches and sumps.

MICHIGAN DISPOSAL WASTE TREATMENT PLANT WEEKEND/HOLIDAY INSPECTION **Date/Time:** ____________

MONITORING, OPERATIONAL, AND STRUCTURAL SYSTEMS **Inspector:** ____________

DESCRIPTION (Quantity)	LOCATION	ACCEPTABLE?		CORRECTIVE ACTION (Who, What)	COMPLETED (When)
		Yes	No		
Treatment Tanks (7A, 7B, 8A, 8B, 9A, 9B, 10A, 10B)					
Spills -- None	Plant				
Leaks -- None	Plant				
Secondary containment	Plant				
Storage Tanks (Vertical 1B, 11, 12, 16-19, 25, 27) & Aboveground Piping					
Spills -- None	Plant				
Leaks -- None	Plant				
Hi-Level Indicators	Plant				
Impoundment Walls & Floor -- Integrity	Plant				
Pug Mills (2)					
Screw Feeders (2) Leaks--None	Plant				
Mixers (2) Leaks--None	Plant				
Discharge Conveyors (2) Leaks--None	Plant				

INSPECTION CRITERIA

Treatment Tanks (7A, 7B, 8A, 8B, 9A, 9B, 10A, 10B)
Verify that there are no spills. Verify that there are no leaks.
Secondary containment pilot lights functional.

Storage Tanks (Vertical 1B, 11, 12, 16-19, 25, 27) & Aboveground Piping
Verify that there are no spills. Verify that there are no leaks.
Hi-Level Indicators: Verify that all units are operating.
Inspect impoundment walls and floor for leaks, cracks or accumulation of liquids.

Pug Mills (2)
Inspect Screw Feeders for signs of leaks or spills.

EQ, BELLEVILLE - MONTHLY INSPECTION REPORT MDWTP ☐ Date/Time: ______

SECURITY, SAFETY, & EMERGENCY EQUIPMENT WDS#2L ☐ Inspector: ______

DESCRIPTION (Quantity)	*LOCATION*	*ACCEPTABLE?*		*CORRECTIVE ACTION (Who, What)*	*COMPLETED (When)*
		Yes	No		
I. Security					
Perimeter Fence -- Intact, Secure	Perimeter				
Warning Signs -- Present	Perimeter Fence				
II. Fire Extinguishing Systems					
Fire Extinguishers (11)	Plant				
In-Tank Foam System (1)	Plant				
Fire Extinguisher (1)	Landfill				
Fire Extinguisher (1)	Receiving				
Fire Extinguisher (1)	Receiving Lab				
Fire Extinguisher (1)	Analytical Lab				
III. Spill Control Equipment					
Drain Block -- Visquene/weight (1)	Plant				
Drain Block -- Visquene/weight (1)	Purchasing				
Front End Loader (1)	On-site				
Sweeper with backup alarm & Water Truck(1)	On-site				
Absorbents (1 pallet)	Plant				
IV. Communications & Alarm Systems	Daily systems check: X'd = OK.			1 2 3 4 5 6 7 8 9 10 11 12 1 3 14 15 16 17 1 8 19 20 21 22 23 24 25 26 27 28 29 30 31	
Radio (1)/Telephone (1)	Security				
Radio (1)/Telephone (1)	Receiving				
Radio (1)/Telephone (1)	Lab				
Radio (1)/Telephone (1)	Plant				
Radio (1)	Landfill				
Emerg. Coordinators' Phone (1) & Pager (1)	Personal				
V. Decontamination Equipment	Weekly Shower & Eyewash check: X'd = OK				
Shower & Eyewash (1)	Analytical Lab			WEEK 1 / WEEK 2 / WEEK 3 / WEEK 4	
Shower & Eyewash (1)	Receiving Lab			WEEK 1 / WEEK 2 / WEEK 3 / WEEK 4	
Showers & Eyewash (10)	Plant			WEEK 1 / WEEK 2 / WEEK 3 / WEEK 4	
Shower (1)	Locker Room			WEEK 1 / WEEK 2 / WEEK 3 / WEEK 4	
Equipment Decontamination -- Wheel Wash (1)	Wheel Wash Bay				
Equipment Decontamination -- Wash Bldg (1)	WWTP				
VI. East Side By-Pass Device					
Maintained in the closed position	Plant				

Personal Protective Equipment (PPE): A large supply of PPE is maintained on-site in the Purchasing storeroom for use by qualified persons.
Respiratory protective equipment can only be issued by the Safety Director to trained and medically fit employees.
In case of power failure, generators on-site can be located by the WER Plant Manager or WWTP Operator.

EQUIPMENT CAPABILITIES & INSPECTION CRITERIA

I. Security

Verify that perimeter fence is intact and secure to prevent unknowing entry to the site.
Verify that warning signs are visable and present to prevent unknowing entry to the site.

II. Fire Extinguishing Systems

Verify that units are at the locations and in the quantities indicated in this inspection report to enable quick access to equipment for fire suppression.
Inspect to determine that all units are maintaining adequate discharge pressure to ensure effective fire suppression.
Verify that maintenance/service contract(s) are being fulfilled by vendor. Inspect the units for deterioration and damage. Replace defective units.
Verify In-Tank foam generating system is charged with foaming solution and has water pressure. Test the flow of foam to tanks.

III. Spill Control Equipment

Front End Loader: Determine the present, on-site availability of the equipment to move absorbents or sand and contained/absorbed spill residues.
Sweeper & Water Truck: Inspect the unit to determine its effective operation to clean up contained spill residues.
If mechanical problems exist that would render the unit unavailable for emergency duty, refer the unit to maintenance staff for repairs and fittings for wear, damage, or deterioration.
Verify that visquene and weight is available to block drains and provide containment of spilled materials.
Verify that at least 1 pallet of absorbent is available to soak up spilled, contained material.

IV. Communications & Alarm Systems

Record daily check that phone system and radios are working with a mark on the date to indicate "OK" on the day inspected.
Verify functional status of base stations and radio equipment used in the waste processing area to allow immediate on-site notification/communication about incident.
Verify telephone service provides communications between waste processing plant and Security, Receiving, Lab, and the Emergency Coordinators' phones.

V. Decontamination Equipment

Record weekly check that Showers and Eyewashes are working with a mark on the inspection week to indicate "OK" on the day inspected.
Verify that showers and eyewash are covered properly to provide a clean supply of water to rinse body parts affected by chemicals.
Verify that all areas/equipment are operational to provide water to rinse chemicals from equipment.

VI. East-Side By-Pass Device

Inspect the By-Pass Device on top of the stack in front of the fan to make sure that it is closed and is properly sealed.

DEQ Attachment 2

MICHIGAN DISPOSAL WASTE TREATMENT PLANT

ANNUAL TANK INSPECTION

Date/Time: ____________________

Inspector: ____________________

TANK NO.	*DESCRIPTION*	*LOCATION*	*NO CRACKS OR LEAKS*		*SEAM INTEGRITY*		*SHELL THICKNESS**		*COMMENTS*
			YES	NO	YES	NO	YES	NO	
1	Silo	Plant							
2	Silo	Plant							
3	Silo	Plant							
4	Silo	Plant							
5	Silo	Plant							
6	Silo	Plant							
7A	Treatment Tank	Plant							
7B	Treatment Tank	Plant							
8A	Treatment Tank	Plant							
8B	Treatment Tank	Plant							
9A	Treatment Tank	Plant							
9B	Treatment Tank	Plant							
10A	Treatment Tank	Plant							
10B	Treatment Tank	Plant							
11	Treatment Tank	Plant							
12	Treatment Tank	Plant							
16	Vertical Storage Tank	Plant							
17	Vertical Storage Tank	Plant							
18	Vertical Storage Tank	Plant							
19	Vertical Storage Tank	Plant							
25	FG Vertical Storage Tank	Plant							
27	FG Vertical Storage Tank	Plant							

FG means tank with fiberglass construction.

*A certified testing lab will determine the shell thickness of all tanks. A copy of the test report must be attached to this inspection form.

INSPECTION CRITERIA

Ascertain that the structural and containment concrete is not degraded.

Note: An outside contractor will be used for these inspections.

ATTACHMENT 3

PERSONNEL TRAINING PROGRAM

PERSONNEL TRAINING FOR SAFE FACILITY OPERATION AND MAINTENANCE

40 CFR 270.14(b)(12), 40 CFR 264.16, and MI Act 64 R504(1)c

CORPORATE OBJECTIVES TARGET SAFETY AND COMPLIANCE

EQ completes all required compliance training for associates in a timely manner. In order to accomplish this a comprehensive training plan is followed which encompasses safety, compliance with environmental standards and job-specific training such as adherence to the waste analysis plan. One module found within this training plan is the training required under RCRA for persons who work at a hazardous waste facility. The requirements at 40 CFR 264.16 say that workers will be given a baseline awareness of potential hazards at the facility and how to respond to an incident involving the release of waste following the site Contingency Plan. This training program, the RCRA Emergency Response Program (RERP), is described below.

RCRA EMERGENCY RESPONSE PROGRAM TRAINING

This section provides an outline of both the introductory and continuing training programs provided by the facility owners and operators to prepare persons to operate or maintain the Hazardous Waste Management facility in a safe manner as required to demonstrate compliance with 40 CFR 264.16. The title of this training program is RCRA Emergency Response Program (RERP). RERP training is designed to meet actual job tasks in accordance with RCRA regulatory requirements at 40 CFR 264.16(a)(3).

GENERAL METHOD AND CONTENT OF TRAINING

Facility personnel successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of this part. The curriculum includes all the elements to fulfill both introductory and continuing training that will be given to each person filling a position related to hazardous waste management at the facility. This program is directed by an associate who is a person trained in hazardous waste management procedures (referred to as the Training Coordinator)

Each manager is responsible for identifying the initial and continuing training needs of his employees to ensure facility compliance with RCRA. This information is communicated to the Training Coordinator who registers employees into training classes. The manager also provides instruction on job-related standard operating procedures and other on-the-job training. This program includes instruction which teaches facility personnel hazardous waste management procedures, including contingency plan implementation, relevant to the positions in which they are employed.

A. TRAINING CURRICULUM:

The training program is designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including;

(i) Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;

(ii) Communications or alarm systems;

(iii) Response to fires or explosions;

(iv) Response to groundwater contamination incidents; and

(v) Shutdown of operations

Note: Automatic waste feed cut-off requirements do not apply to this facility. See the training curriculum outline included as Attachment 1

B. TRAINING TIMING AND FREQUENCY

Each affected person completes the program within six months after the effective date of these regulations or six months after the date of their employment or assignment to a facility, or to a new position at a facility, whichever is later. Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements of the RERP.

C. ANNUAL REVIEW:

All facility personnel take part in an annual RERP review of the initial RERP training.

D. DOCUMENTATION AND RECORD KEEPING:

The owner or operator maintains the following documents and records at the facility:

(1) Job Title and Employee List:

The job title for each position at the facility related to waste management, and the name of the employee filling each job (See Attachment 3)

(2) Job Description:

A written job description for each position listed above. This description may be consistent in its degree of specificity with descriptions for other similar positions in the same company location or bargaining unit, but must include the requisite skill, education, or other qualifications, and duties of employees assigned to each position;

(3) Training Requirements

A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position listed.

(4) Records

Records that document that the RERP training or job experience has been given to, and completed by, facility personnel (Attachment 2)

E. RECORD MANAGEMENT:

Training records on current personnel are kept until closure of the facility. Training records on former employees are kept for at least three years from the date the employee last worked at the facility. Such records are maintained on-site.

Personnel training records may accompany personnel transferred within the same company to another facility

TRAINING REQUIREMENT

IMPROVING EQ'S IQs
Haz waste - Federal

December 12, 1994 | VOL95001

RCRA EMERGENCY RESPONSE PROGRAM TRAINING

Regulatory Background:	RCRA regulations per 40 CFR 264.16
Course Objectives:	This training is designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems.
Affected Positions:	All Site # 2 employees and all main office employees who work at Site # 2 are required to receive this training.
Training Frequency:	Facility personnel receive this training within 6 months after hiring into a position at the facility. This training must be conducted annually and classes will generally be provided in the third or fourth quarter of the year. This training may also be covered as part of the new employee orientation, HAZWOPER training classes or meetings conducted by managers over the course of the year.
Class Duration:	45 minutes
Course Outline:	This class includes the following topics as outlined in the current Contingency plan for the facility- 1. Emergency Response and Monitoring Equipment- procedures for use, inspection, repair and replacement 2. Communications or alarm systems 3. Response to fires or explosions 4. Response to groundwater contamination incidences: a) Sudden releases or "spills" of hazardous waste b) Non-Sudden releases or "leaks" of hazardous waste 5. Shutdown of operation Note: Automatic waste feed cut-off requirements do not apply to this facility.
Performance evaluation:	None

Attachment 2

TRAINING PROGRAM RECORD
for Initial Training or Review

TRAINING PROGRAMS:

1. HAZWOPER Written Health & Safety Program
2. Site #2 Hazard Communication Program
3. Personal Protective Equipment / Respiratory Protection Program & Medical Surveillance Requirements
4. HAZWOPER Training Required (Overview)
5. HAZWOPER Emergency Response Plan: Awareness Level Training
6. RCRA Emergency Response Training- Contingency Plan

I have completed the above listed training and will support the implementation of these programs at EQ. A copy of this record will be placed in my Employee Training file.

Signature of Trainees	Printed Names	Manager
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Trainer: ______________________ Date: ______________________

Hazardous Waste workers - are potentially exposed to hazardous waste or wear respirators 30+ days per year or take part in an emergency response.
Persons filling these positions are given the following training prior to assignment working with Hazardous Waste:

Type	Title	Frequency
1. RCRA - Intro	RERPT[1]	Within 6 months of assignment
2. RCRA - Update	RERPT[1]	Once Annually

HAZARDOUS WASTE WORKERS

JOB TITLE	EMPLOYEE'S NAME	POSITION DESCRIPTIONS (PDs)	MANAGER	LOCATION
		PDs below are examples. Others may be used.		
HW Worker		Chemist I		EQ BELLEVILLE
HW Worker		Chemist III		EQ BELLEVILLE
HW Worker		Class 2 - Maintenance II		EQ BELLEVILLE
HW Worker		Class 2 - Processing Plant Operator		EQ BELLEVILLE
HW Worker		Class 3 - Maintenance Trainee		EQ BELLEVILLE
HW Worker		Class 3 - Processing Plant Worker		EQ BELLEVILLE
HW Worker		Class II - Operator		EQ BELLEVILLE
HW Worker		Class II Operator - WWTP		EQ BELLEVILLE
HW Worker		Class III - Sweeper		EQ BELLEVILLE
HW Worker		Class IV - Pumper		EQ BELLEVILLE
HW Worker		Class IV - Wheel Wash		EQ BELLEVILLE
HW Worker		Drum Pad Supervisor		EQ BELLEVILLE
HW Worker		Haz-Cell Operator		EQ BELLEVILLE
HW Worker		*Haz. Waste Services Manager		EQ BELLEVILLE
HW Worker		*Hazardous Waste Specialist		EQ BELLEVILLE
HW Worker		*HW Health & Safety Quality Specialist		EQ BELLEVILLE
HW Worker		HW Manifest Agent I		EQ BELLEVILLE
HW Worker		HW Manifest Agent II		EQ BELLEVILLE
HW Worker		Laboratory Manager		EQ BELLEVILLE
HW Worker		Laboratory Technician		EQ BELLEVILLE
HW Worker		Manifest Agent		EQ BELLEVILLE
HW Worker		Operations Supervisor		EQ BELLEVILLE
HW Worker		*Plant Manager		EQ BELLEVILLE
HW Worker		R&D Chemist		EQ BELLEVILLE
HW Worker		*Technical Services Manager		EQ BELLEVILLE
HW Worker		*V.P. - Haz.Waste Businesses		M.O.
HW Worker		WWTP Chemist		EQ BELLEVILLE

1 - RERPT stands for the RCRA Emergency Response Program Training required for Hazardous Waste Workers under the Hazardous Waste Permits for this site.
* - Position Descriptions for persons eligible for designation as Emergency Coordinator.

TRAINING PROGRAMS for Hazardous Waste Workers

Michigan Disposal Waste Treatment Plant

& Wayne Disposal Hazardous Waste Landfill

The Environmental Quality Co.

Who are Hazardous Waste Workers?

HW Workers are highly skilled, well trained people who:

- *work with hazardous substances >30 days/year or*
- *wear respirators >30 days/year or*
- *could be instructed to assist in an Emergency Response.*

The special "Care & Training" of HW Workers

HW Workers are specially trained & equipped:

- *to protect their Health*
- *to promote Safety*
- *to protect the Environment*
- *to protect Public Health*

Medical Surveillance and Environmental Monitoring show it works!

Safety & Health Care Programs for HW Workers

- *Michigan's Occupational Safety and Health Act (MIOSHA) requires EQ to train all HW Workers about:*
- *HAZWOPER Written Health & Safety Program*
- *Personal Protective Equipment & Respiratory Protection Programs*
- *HAZWOPER Training: 24 Hour Initial plus Annual 8 hour Refresher*

HAZWOPER Written Health & Safety Program

- *Required by OSHA (29 CFR 1910.120) & MIOSHA at R325.52101-7.*
- *Identifies site hazards and ways to eliminate or reduce them*
- *Promotes proper use of PPE & Respiratory Protection*
- *Includes Training Program & Emergency Response Plan*

Personal Protective Equipment (PPE) & Respiratory Protection

Minimize chemical exposure. EQ's Health and Safety Program includes:

- Medical Surveillance: Initial, Exit & Periodic
- Written instructions with maps describing what equipment to use.
- Same standards apply equally to Transporters, Contractors & EQ's Operators.

HAZWOPER Training

Basic requirements for working at "controlled" HW sites are:

- 24 Hour "Initial"
- 8 Hour "Refresher" annually

Upgrades for working at "uncontrolled" HW sites are:

- Add 16 hours to make 40 Hour "Initial"
- 8 Hour Supervisory

Environmental Protection Training for HW Workers

Hazardous Waste Laws (RCRA & MI Part 111 of Act 451) require HW Facilities to train all HW workers about:

- *Hazardous Waste Permit Requirements*
- *RCRA Emergency Response Training*
- *On-the-Job Training about safety, operating procedures and skills*

Hazardous Waste Management Law, Rules and Permits

- "RCRA" means Resource Conservation & Recovery Act (1976) and Hazardous & Solid Waste Amendments (1984)
- "Act 64" means Michigan's Hazardous Waste Management Act (1980) now known as Part 111 of MI Act 451, P.A.1995.

Hazardous Waste Permits: Scope of Business

HW treatment, storage or disposal facility (TSDF) permits include:

- Nature of business and Processes used
- Waste Analysis Plan
- Hazardous waste types and quantities

Hazardous Waste Permits: Public Safety

HW treatment, storage or disposal facility (TSDF) permits include:

- *Site Security*
- *Inspection Program*
- *Preparedness & Prevention of Emergencies*
  - *Contingency Plan*

Hazardous Waste Permits: Facility Design

HW treatment, storage or disposal facility (TSDF) permits include:

- Engineering Drawings
- Design and construction specifications
- Traffic Patterns

Hazardous Waste Permits: Operational Quality Control

HW treatment, storage or disposal facility (TSDF) permits include:

- Container Storage - segregate incompatibles, isolate hazards
- Treatment in Tanks
- Landfill Disposal

Hazardous Waste Permits: Environmental Performance

HW treatment, storage or disposal facility (TSDF) permits include:

- Closure/Post Closure Plans, Cost Estimates, Financial Assurance
- Proof of Insurance
- Environmental / Hydrogeologic Background, Monitoring & Reporting

Hazardous Waste Permits: Maintaining the Privilege

- *HW treatment, storage or disposal facilty (TSDF) permits grant us the right to do business.*
- *Haz Waste Permits for treatment, storage or disposal facilities (TSDF) are renewed by DNR and EPA every 5 years.*

Emergency Awareness Training

If you see an accident, fire or spill:

- *Call 911 if any person requires immediate medical attention.*
- *Notify others who are in danger to leave.*
- *Notify Emergency Coordinator and follow further instructions.*

If notified to evacuate: Go to the meeting point shown on the Evacuation Map.

RCRA Emergency Response Training

As part of the HW Permits, the current Contingency Plan requires:

- Equipment for emergency response and monitoring
- Communications or alarm systems
- Lists of EQ's Emergency Coordinators and Emergency Response support organizations

RCRA Emergency Response Training

For your work area, learn and drill:

- *Shutdown of operations*
- *Response to fires or explosions*
- *Prevention of groundwater contamination from spills or "sudden releases" of hazardous waste and from "nonsudden releases".*
- *Follow up investigation of Incidents: the Goal is Prevention.*

Summary

- *Our goal for you is a work experience that is safe, environmentally protective & productive.*
- *At EQ we can be highly productive, with lasting results, if each of us does the right work in the right way.*
- *How did this training help? Improvements?*

Where to get more information

- *Your supervisor = Your #1 All-time Best Information Source*
- *Further On-the-Job Training & Videos*
- *Ask to read it for yourself: Batch Tickets, Tank Clearances, Procedures*
- *Ask the Lab, Manifest Agents, Safety or Environmental Staff.*

ATTACHMENT 4

CONTINGENCY PLAN

EQ -- THE ENVIRONMENTAL QUALITY COMPANY

PRESENTS

RCRA CONTINGENCY PLAN

AND

EMERGENCY PROCEDURES

FOR

MICHIGAN DISPOSAL WASTE TREATMENT PLANT

&

WAYNE DISPOSAL, INC. LANDFILL

AT

BELLEVILLE, MICHIGAN

As revised 5/99
(Discard all previous versions)

RCRA CONTINGENCY PLAN AND EMERGENCY PROCEDURES

FOR

Michigan Disposal Waste Treatment Plant and

Wayne Disposal, Inc. Landfill

49350 N. I-94 Service Drive

Belleville, Michigan 48111

RCRA CONTINGENCY PLAN PURPOSE

"Contingency Plan" means document that sets out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment." (R299.9102(o), 40 CFR 260.10)

The contingency plan has been designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

The provisions of the plan are to be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment(40 CFR 264.51(b))

TABLE OF CONTENTS

A1. Description of facility operations - Michigan Disposal Waste Treatment Plant

Description of General Facility Processes

The Michigan Disposal Waste Treatment Plant (MD) operations include receiving, storage, and treatment of hazardous and non-hazardous waste permitted by the Michigan Department of Environmental Quality under the facility operating license (United States Environmental Protection Agency (USEPA) Identification (ID) Number (No.) MID 000 724 831).

The specific routine operations and work areas include:

- Waste receiving and quality control(QC)
- Waste loading/unloading
- Reagent unloading and tank storage
- Waste storage in tanks
- Waste treatment in tanks
- Container staging and storage and
- Shipment of waste off-site to permitted treatment, storage, and disposal facilities (TSDFs)

The requirements for operations in these areas are defined in and regulated by the facility operating license. Non-hazardous wastes are managed in accordance with the facility's Solid Waste License (Part 115 of MI Act 451 of 1994).

Waste Identification and Classification

The waste types acceptable for treatment and storage at the facility are defined in Part 111 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451) and 40 CFR regulations at part 261.

The facility license has specific restrictions regarding the waste types and concentrations of the following waste contaminants NOT ACCEPTABLE for treatment:

- Volatile Organic Compound (VOC) content greater than specified levels
- Flammable wastes (less than (<) 90 degrees Fahrenheit (°F) flashpoint)
- Reactive waste as defined by Michigan Act 451 rule 299.9212(3) and
- Polychlorinated biphenyls (PCBs) > 50 parts per million (ppm)

Description of Waste Management Units

The MD facility is a liquid and solid hazardous & non-hazardous waste storage and treatment facility. Containerized wastes may be stored on-site before and after treatment in one of five hazardous waste storage areas: the North Container Storage Area, the East Container Storage Area the Southeast Container Storage Area and the East and West Treatment Bays. Wastes to be treated may be fed through a screw conveyor from the sludge feed tanks to pugmills at the east or west ends of the facility or placed directly into the waste treatment tanks and mixed with modifiers for deactivation, chemical oxidation, chemical reduction or stabilization- as needed by the specific wastes being treated. The facility is equipped with pollution control systems for particulate, odor, and emission control.

Liquid hazardous wastes to be treated in the pozzolanic stabilization process may be stored in four, 20,000 gallon, vertical storage tanks(T-16 through T-19) and two, 40,000 gallon sludge feed tanks(T-11 and T-12). Liquid reagents are stored in two, 15,000 gallon vertical tanks (T-25 and T-27).

Hazardous Waste dust may be stored in three 100 cubic yard (cy) silos (T-1, T-2, and T-3) on the west side of the plant. Lime kiln flue dust, cement kiln flue dust, and lime are also used for stabilization and may be used in all six silos (T-1 through T-6). The dusts are fed from the silos to the closest pugmill and treatment tank at a controlled rate to effect treatment of liquid and solid wastes. Other reagents, such as ferrous sulfate, may be added directly to the tanks in bag or bulk quantities.

Listed and characteristic hazardous wastes are stored and treated in sludge receiving tanks, sludge storage tanks, and pugmills on the west side of the plant (Tanks 1, 2, 3, 7a, 7b, 8a, 8b, 11, and 14) and similarly stored and treated on the east side of the plant (Tanks 9a, 9b, 10a, 10b, 12, and 15). In both cases, treatment consists of blending the waste in sludge feed tanks prior to treatment in the pugmills or mixing and treatment directly in the sludge storage/treatment tanks. Other chemical reagents may be selectively added in drum or bulk quantities.

Containerized hazardous waste and non-hazardous wastes are staged and stored on concrete pads at the North Container Storage Area, the East Container Storage Area the Southeast Container Storage Area and the East and West Treatment Bays. Drainage trenches constructed within the containment areas contain and control liquid runoff. Drums are transported from the pad into the plant using a barrel forklift. Then they are opened by carefully removing the tops or bungs and immediately emptying the contents with a vacuum truck or pouring contents directly into the sludge boxes or treatment tanks using the barrel forklift. The empty drums are placed into a roll-off box or other similar containers for subsequent disposal.

The disposal operations are supported and directed from the office/lab and waste receiving site located near the entrance to the facility. These support operations assist to control and evaluate shipments received for conformance with pre-approval information regarding the specific properties, treatment, and documentation requirements. The facility waste characterization and analysis records are maintained on-site.

A2. Description of facility operations - Wayne Disposal, Inc. Landfill

Description of General Facility Processes

The WDI operations include the landfill disposal of hazardous and non-hazardous wastes permitted by the MDEQ under the facility operating license(United States Environmental Protection Agency (USEPA) Identification (ID) Number (No.) MID 048 090 633).

The specific routine operations and work areas include:

- Waste receiving and quality control
- Waste unloading
- Hazardous waste landfill and related appurtenances (piping, pumps, operation and maintenance, truck wheel wash buildings located within the area bounded by North Interstate 94 (I-94) Service Drive and Willow Run Airport)

The landfill is currently permitted with a design capacity of 11,000,000 cubic yards (cy) of in-place waste. The requirements for operations in these areas are defined in and regulated by the Hazardous Waste Treatment, Storage and Disposal Facility operating license. Non-hazardous wastes are managed in accordance with the facility's Part 115 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451). The WDI landfill is-located at the same site as the MD treatment and storage facility (MID 000 724 831). The WDI landfill disposal operations are supported by the MD office/lab and waste receiving, storage, and treatment operations located near the entrance of the facility. These operations assist to control and evaluate shipments received for conformance with pre-approval information regarding the specific properties, treatment, and documentation requirements. The WDI facility waste analysis records are maintained on-site.

Waste Identification and Classification

The waste types acceptable for treatment and storage at the facility are defined in Parts 111 and 115 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451) and 40 CFR Regulations at Part 261.

The facility license has specific restrictions regarding the following waste types NOT ACCEPTABLE for disposal:

- Ignitable wastes as described in Michigan Act 451 rule R 299.9212
- Reactive wastes as described in Michigan Act 451 rule R 299.9212
- Bulk or noncontainerized liquid waste or waste containing free liquids
- Containers holding free liquids, including laboratory packs

- Wastes which are banned from landfilling by regulations promulgated under 40 Code of Federal Regulations (CFR) Part 268 unless the wastes meet the applicable Land Disposal Restriction (LDR) treatment standards or a variance has been obtained from the USEPA
- Waste which will:
  (1) Adversely affect the permeability of the clay liner.
  (2) Produce a leachate that is incompatible with the clay liner, leachate collection system piping, or the off-site sewer system.
  (3) Generate gases that will adversely affect the permeability of the clay cap or create a violation of the air pollution control requirements of Part 55 of Act 451.

Description of Waste Management Units

The WDI facility includes a permitted hazardous waste landfill with primary and secondary liner systems, a leachate collection and removal system, and a leak detection, collection and removal system. The landfill operations also include run-on, run-off, and contaminant control systems including a vehicle wash facility and other landfill-related appurtenances and support buildings. When placed in the landfill, containers are at least 90% full or crushed, shredded, or similarly reduced in volume before burial in the landfill.

PLAN SCOPE (264.52)

264.52(a). Actions facility personnel must take to minimize hazards in response to fire, explosions, or any unplanned sudden or non-sudden release of hazardous waste

All MD and WDI personnel are instructed to respond, in case of emergency, as follows:

1. If any person has been seriously injured call 911 for EMT support.
2. Shut down, as necessary, all processing and ancillary equipment per manufacturers instructions, associated with the incident.
3. If persons in the immediate area are potentially endangered advise them to leave immediately.
4. Contact the Emergency Coordinator(s) in person, as necessary, by radio or phone(See Section 264.52(d), page 17 for the list of Emergency Coordinators).
5. Indicate nature of emergency and stand by to receive instructions from Emergency Coordinator or evacuate.

The Emergency Coordinator will direct actions of all facility personnel to:

1. Identify hazards and assess extent of potential harm to human health or the environment.
2. Notify, as necessary, the appropriate Emergency Response Contacts listed on pages 14-16.
3. Respond in cooperation with outside agencies to minimize hazards.
4. Follow up response actions with required reports (verbal and written).

If there is a fire, explosion, or other release of hazardous waste or hazardous waste constituents that could threaten human health or the environment, or a spill that reached surface water or ground water, then immediately notify the DEQ's pollution emergency altering system (PEAS) - telephone number 800-292-4706. The notification shall include all of the following information:

(a) The name and telephone number of the person who is reporting the incident.

(b) The name, address, telephone number, and EPA Identification No. of the facility.

(c) The name, address, and telephone number of the owner or operator.

(d) The date, time, and type of incident.

(e) The name and quantity of the material or materials involved and released.

(f) The extent of injuries, if any.

(g) The estimated quantity and disposition of recovered material that resulted from the incident.

(h) An assessment of actual or potential hazards to human health or the environment.

(i) The immediate response action taken.

264.52(b). Emergency Response Planning

This RCRA Contingency Plan is a part of the overall effort at the facility to predict, prevent, and properly respond to incidents. The RCRA Contingency Plan satisfies RCRA requirements for responses to emergencies involving hazardous waste.

264.52(c). Arrangements with local agencies - MD & WDI

(a) The following are arrangements agreed to by local fire departments, police, hospitals, contractors, state and local emergency response teams to coordinate emergency services.

1) Local police, fire departments, and emergency response teams are made familiar with the layout of the facility (by independent review of copy of this contingency plan and upon response by ER contact and tours of the facility), properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes.

2) The Primary emergency authority of the local police and fire department is set forth by state and local law or ordinance. The Van Buren Fire Department is deemed the primary emergency contact for situations related to this site's operations. The Van Buren Fire Department will make other emergency team contacts at their discretion, usually asking for the assistance of the Van Buren Police Department/Michigan State Police. This, of course does not preclude MD and WDI personnel from exercising the option of contacting additional emergency units depending on the circumstances (A list of Emergency Response Contacts is provided in this section). Any others providing support to the primary emergency authority will follow the direction of the local police and fire departments.

3) All necessary Support by emergency response teams, emergency response contractors, and equipment suppliers has been documented in this Plan.

4) Information to familiarize hospital staff with the properties of wastes involved in an injuries, incident, or illness resulting from fires, explosions, or releases will be provided at the time of response to an incident.

(b) No state and local authorities have declined to enter into such arrangements; if such refusal occurs it would be documented.

264.52(c). Emergency Response Contacts - 1999

Agency	**Contact #**	**Emerg. #**
Ambulance Services		
1. Huron Valley Ambulance Service, Inc. 2215 Hogback Road Ann Arbor, MI 48105 Contact: Mr. Dale Berry, Executive Director	(734) 971-4733	(734) 994-4111
Emergency Medical Services		
1. St. Joseph Mercy Hospital 5301 E. Huron River Drive Ann Arbor, MI 48106 Contact: Dr. Brian Cook, MD - Emergency Room	(734) 712-3456	(734) 712-3000
2. St. Joseph Mercy Health System - Business Health Services 3075 Clark Road, Suite 200 Ypsilanti, MI 48197 Contact: Milt E. Dupuy, MD, MPH, Medical Director		(734) 712-2376
3. St. Joseph Mercy - Canton Business Health Services 1600 South Canton Center Road Canton, MI 48187 Contact: Mr. Anthony Burton, MD, Medical Director		(734) 398-7550
Poison Information		
1. Poison Control Center Children's Hospital of Michigan Harper Professional Office Building 4160 John R, Suite #616 Detroit, MI 48201 Contact: Dr. Suzanne White, Medical Director or Dr. Kirk Mills, Associate Medical Director	(313) 745-5335	(313) 745-5711

Agency		Contact #	Emerg. #
Fire Departments			
1.	Van Buren Township Fire Department 46425 Tyler Road Belleville, MI 48111 Contact: Mr. Allen M. Smolen, Chief	(734) 699-8930	911
2.	Willow Run Airport Fire Department P.O. Box 801 Ypsilanti, MI 48198 Contact: Mr. David Russow, Fire Chief	(734) 942-3604	(734) 483-6700 Control Tower: (734) 482-5825
3.	Ypsilanti Township Fire Department 222 South Ford Boulevard Ypsilanti, MI 48198 Contact: Mr. Phil Wagner, Chief	(734) 483-4225 (734) 483-1092	(734) 483-4224
Police Departments			
1.	Van Buren Township Police Department 46425 Tyler Road Belleville, MI 48111 Contact: Mr. Mark Perkins, Public Safety Director	(734) 699-8930	911
2.	Taylor - State Police Post 12111 Telegraph Road Taylor, MI 48180 Contact: First Lieutenant Dennis Boland	(734) 782-2435	911
State and Federal Emergency Reporting			
1.	State of Michigan: Pollution Hotline	(800) 292-4706	
2.	Federal: National Response Center	(800) 424-8802	

Agency	**Contact #**	**Emerg. #**
Van Buren Township Government		
1. Van Buren Township 46425 Tyler Road Belleville, MI 48111 Contact: Ms. Helen Foster, Supervisor	(734) 699-8900	911
Special Agencies		
1. Western Wayne County Hazardous {Incident Response Team (H.I.R.T)} 222 South Ford Boulevard Ypsilanti, MI 48198 Contact: Mr. Phil Wagner, Hazmat Team Coordinator Note: Hazmat Team may only be activated by an on-scene Fire Department Officer.	(734) 483-4225	(734) 483-4224
2. Sara Title III Local Emergency Planning Committee Wayne County Emergency Management Office of Wayne County Executives 10250 Middlebelt Road Detroit, MI 48242 Contact: Mr. Mark Sparks, Director of Emergency Management	(734) 942-5289	(734) 942-3600

264.52(d). Emergency Coordinators for MDWTP & WDI Facilities

Emergency Coordinators		Site phone number: (734) 699-6201
Primary:	Timothy Tilotti Director of Operations MDWTP & WDI	Office: (734) 699-6210 Pager: (888) 348-6065 Cellular: (313) 304-0555 Home: (734) 676-9291
	Tony Patrick (MDWTP Superintendent)	Office: (734) 699-6214 Pager: (800) 312-0542 Cellular: (313) 304-1297 Home: (313) 482-1972
Alternates:	Jennifer Baker (Manager, Regulatory Affairs)	Office: (734) 699-6230 Pager: (888) 963-1122 Cellular: (734) 260-0000 Home: (734) 782-5724
	Rob Wilson (2nd Shift Supervisor)	Office: (734) 699-6244 Pager: (313) 512-0034 Cellular: (734) 216-0875 Home: (313) 562-0471
	Paul Haratyk (1st Shift Supervisor)	Office: (734) 699-6283 Pager: (800) 312-2539 Cellular: (734) 216-0105 Home: (734) 697-3479
	Bill O'Brien (Drum Pad Supervisor)	Office: (734) 699-6218 Pager: (313) 219-4472 Cellular: (734) 260-0242 Home: (734) 428-0003
	Kerry Durnen (WWTP Manager)	Office: (734) 699-6265 Pager: (313) 217-6829 Cellular: (734) 216-0104 Home: (734) 944-9329
	Tom Macdonald (WDI Project Manager)	Office: (734) 699-6239 Pager: (313) 512-1678 Cellular: (734) 216-0789 Home: (313) 582-4968

264.52(e). Location of Emergency and Decontamination Equipment at the facility

Provided at the end of this Contingency Plan is a checklist of equipment on-site with the following capabilities:

1. Fire Extinguishing Systems
2. Spill Control Equipment
3. Communications & Alarm Systems
4. Decontamination Equipment

This "Security, Safety, & Emergency Equipment Monthly Inspection" (Figure 1) is used to document inspection, replacement, and repair of the items described.

264.52(f). Evacuation plan for facility personnel

Clearing Immediate Area

If any employee in the active hazardous waste treatment area or waste reception area encounters an emergency situation which they believe to present an imminent threat to human health or the environment, the individual employee is authorized to leave the area immediately and tell others to leave the area immediately.

Any available route away from the hazard may be used either on foot or by vehicle. The employee should proceed out the main gate to the service drive or out Denton Road to the service drive and notify security to contact the Emergency Coordinator. If security has been disabled use radio or first available phone to contact the Emergency Coordinator.

Evacuation of Entire Facility

Evacuation Signal:

If in the opinion of the Emergency Coordinator a general evacuation of the entire site is warranted, he will notify all persons on-site by radio and PA systems. All employees work under supervision of a supervisor in public address system range or direct radio contact with the Emergency Coordinators. Evacuation notice will be given verbally to these employees.

Primary Evacuation Route:

Upon receiving the evacuation order by radio, all employees, including persons in the non-hazardous areas, must immediately proceed out Denton Road to the service drive and congregate at that point. The security guards' list of persons on-site will be used for roll call.

Alternate Evacuation Route:

If wind direction and location of hazard blocks the Denton Road gate, the employees must exit the main gate to service drive and congregate east of the entrance. The security guards' list of persons on-site will be used for roll call.

Return to Site:

Employees should not return to the site until instructed to do so by the Emergency Coordinator, or until a general all clear signal is given over the radio/PA system.

264.53. Plan Distribution

1. On-Site Copy Locations: Official Copies of the Contingency plan can be found in the following locations on-site:

    a) Processing Plant Office

    b) Guard Office

    c) Safety Office

    d) Emergency Coordinators' Office

    e) Manifest Building

2. Off-Site Copy Locations: Official Copies of the Contingency Plan have been sent to the following agencies off-site:

    a) MD Main Office (Wayne, MI)

    b) Each of the Emergency Response Contacts with addresses listed in section 264.52(c) of this plan.

264.54. Plan Revision

The contingency plan must be reviewed, and immediately amended, if necessary, whenever:

(a) The facility permit is revised;

(b) The plan fails in an emergency;

(c) The facility changes - in its design, construction, operation, maintenance, or other circumstances - in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;

(d) The list of Emergency Coordinators changes; or

(e) The list of emergency equipment changes.

All amendments of this plan are subject to the authorization of the Vice President of Hazardous Waste Operations and by the Michigan Department of Environmental Quality.

The Emergency Coordinators will initiate update of the Contingency Plan whenever it becomes outdated.

Off-site copies will be distributed by certified mail, return receipt requested, with instructions to destroy all previous copies.

264.55. Availability and Authority of Emergency Coordinator

At all times there is at least one employee on the facility premises or on call (i.e. available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures.

This emergency coordinator is thoroughly familiar with all aspects of the facility's Contingency Plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout.

In addition, this person has the authority to commit the resources needed to carry out the contingency plan (See Memorandum of Authorization, page 23)

MEMORANDUM OF AUTHORIZATION

February 14, 1997

From: Dave Lusk

To: All EQ Associates

RE: Authorization to commit resources in time of Emergency

Personnel in the following management positions are fully authorized to commit and to expend resources on behalf of EQ, the Environmental Quality Co., for reasonable needs in time of Emergency at Site #2, Belleville, MI

1. Landfill Manager
2. Plant Manager
3. Shift Supervisor
4. Technical Manager
5. Emergency Coordinator as designated in the EQ Site #2 RCRA Contingency Plan.

Signed,

David Lusk
Vice President of
Hazardous Waste
Operations

cc: All copies of Contingency Plan

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David Lusk
Vice President of
Hazardous Waste
Operations

cc: All copies of Contingency Plan

264.56. Actual Emergency Procedures to be carried out by emergency coordinator or designee

264.56(a). At time of incident

Whenever there is an imminent or actual emergency situation, the Emergency Coordinator (or his designee) immediately:

(1) Activates internal communication systems (Radio/ PA System) to notify all facility personnel; and

(2) Notifies appropriate state or local agencies with designated response roles if their help is needed.

264.56(b). In the event of, release of hazardous waste, fire, or explosion

The Emergency Coordinator must immediately identify the character, exact source, amount and extent of any released materials. He may do this by observation and/or review of the facility records or manifests, and if necessary, by chemical analysis.

264.56(c). Assessment of possible hazards to human health or environment

The Emergency Coordinator must assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

Sudden Release (Spill) Control, Containment, Cleanup, and Disposal

In the event of a spill or release which could threaten human health or the environment, the following steps should be taken:

1. Contact the Emergency Coordinator for instructions.

2. The Emergency Coordinator shall give directions to:

   a) Isolate the area of the spill to prevent contact with any personnel.

   b) Determine the characteristics of the spilled waste for any special handling requirements. If feasible and safe, stop the release at the source of the flow by overpacking or uprighting containers, using valves, shut off switches, patches, lids or other mechanical devices. Drains or sumps may be sealed using visqueen and a weight such as a bag of absorbent.

   c) Vacuum any available spilled waste with the vacuum truck. Any remaining residue should be contained with absorbents and shoveled into containers in preparation for disposal. Solid wastes may be front-end loaded into containers or waste hauling vehicles.

   d) If the spill occurred in a paved area, the pavement should be cleaned with water and detergent solution, under high pressure and then rinsed twice with clean water, being sure to collect all spent cleaning and rinsing solutions with the vacuum truck.

e) In the event the spill occurs in an unpaved area, all visible contamination should be removed. At least six inches of "clean" soils surrounding the contaminated area should also be removed. Samples should then be taken for chemical analysis to confirm the absence of any contaminants from the spilled waste.

f) Containers of Hazardous Waste are properly labeled and marked and managed in generation accumulation areas. They are properly characterized and disposed of at a properly licensed waste management facility. A properly completed manifest is used if transport of liquids or hazardous waste to an off site destination is necessary.

3. The emergency coordinator shall assist in the preparation of the appropriate reports described below.

264.56(d). Notification of Regional Authorities by operator

If the Emergency Coordinator determines the facility has had a release, fire, or explosion which could threaten human health or the environment outside the facility, he will report such findings and act as follows:

1. If the Emergency Coordinator suspects that the evacuation of surrounding local areas is advisable, he will inform Van Buren Fire Department, or Van Buren Police Department or MI State Police and assist the appropriate officials in deciding whether evacuation is necessary and, if so,

assist in determining what areas should be evacuated. In the event of fire, the Emergency Coordinator gives special consideration to potential impact of smoke or fumes on I-94 freeway traffic.

2. If there is a fire, explosion, or other release of hazardous waste that could threaten human health or the environment, or a spill that reached surface water or ground water, the Emergency Coordinator will immediately notify the DEQ's pollution emergency alerting system (PEAS) - telephone number 800-292-4706. The notification shall include all of the following information:

(a) The name and telephone number of the person who is reporting the incident;

(b) The name, address, telephone number, and EPA Identification No. of the facility;

(c) The name, address, and telephone number of the owner or operator;

(d) The date, time, and type of incident;

(e) The name and quantity of the material or materials involved and released;

(f) The extent of injuries, if any;

(g) The estimated quantity and disposition of recovered material that resulted from the incident, if any;

(h) An assessment of actual or potential hazards to human health or the environment;

(i) The immediate response action taken.

If any threat to human health or to the environment extends offsite, the Emergency Coordinator will also contact the National Response Center (800-424-8802) and report the following:

1. Name and phone number of reporter;
2. Name and address of facility;

3. Time and type of incident;

4. Name and quantity of material involved, to the extent known;

5. The extent of injuries, if any;

6. Possible hazards to human health or the environment outside the facility.

264.56(e). Preventing the spread of hazards

During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

264.56(f). Response to fire, explosion, or release

If the facility stops operations in response to a fire, explosion, or release, the Emergency Coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes or other equipment, whenever this is appropriate.

264.56(g). Provision for treatment, storage, and disposal of waste generated in emergencies

Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.

[Comment: Unless the owner or operator can demonstrate, in accordance with Section 261.3(c) or (d) of 40 CFR, that the recovered material is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262, 263, and 264 of 40 CFR.]

264.56(h). Prevention of and Preparation for future incidents

The Emergency Coordinator must ensure that, in the affected area(s) of the facility:

(1) No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and

(2) All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed in the affected area(s) of the facility.

264.56(i). Notification of Compliance with section 264.56(h)

Notification must be given to the Regional Administrator, and appropriate state and local authorities, that the facility has taken the necessary steps to prevent and prepare for future incidents (as described in 40 CFR 264.56(h)) before operations are resumed in the affected area(s) of the facility.

264.56(j). Post Emergency Documentation and Reporting

Documentation:

The Emergency Coordinator will note in the Operating Record the time, date, and details of any incident that requires implementing the Contingency Plan.

Reporting:

Within 15 days of any situation requiring implementation of the Contingency Plan, the Emergency Coordinator shall prepare a report to be submitted to the Regional Administrator (EPA) and DEQ District Supervisor, Waste Management Division, SE Michigan District (Livonia). At a minimum, the report shall detail the following:

1. Name, address and phone number of the operator;
2. Name, address, and telephone number of the facility;
3. Date, time, and type of incident (e.g. fire, explosion);
4. Name and quantity of material(s) involved;
5. The extent of injuries, if any;
6. An assessment of actual or potential hazards to human health or the environment, where this is applicable; and
7. Estimated quantity and disposition of recovered material that resulted from the incident.

EQ, BELLEVILLE - MONTHLY INSPECTION REPORT MDWTP ☐ Date/Time: ______

SECURITY, SAFETY, & EMERGENCY EQUIPMENT WDS#2L ☐ Inspector: ______

DESCRIPTION (Quantity)	*LOCATION*	*ACCEPTABLE?*		*CORRECTIVE ACTION (Who, What)*	*COMPLETED (When)*
		Yes	No		
I. Security					
Perimeter Fence -- Intact, Secure	Perimeter				
Warning Signs -- Present	Perimeter Fence				
II. Fire Extinguishing Systems					
Fire Extinguishers (11)	Plant				
In-Tank Foam System (1)	Plant				
Fire Extinguisher (1)	Landfill				
Fire Extinguisher (1)	Receiving				
Fire Extinguisher (1)	Receiving Lab				
Fire Extinguisher (1)	Analytical Lab				
III. Spill Control Equipment					
Drain Block -- Visquene/weight (1)	Plant				
Drain Block -- Visquene/weight (1)	Purchasing				
Front End Loader (1)	On-site				
Sweeper with backup alarm & Water Truck(1)	On-site				
Absorbents (1 pallet)	Plant				
IV. Communications & Alarm Systems	Daily systems check: X'd = OK.			1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	29 30 31
Radio (1)/Telephone (1)	Security				
Radio (1)/Telephone (1)	Receiving				
Radio (1)/Telephone (1)	Lab				
Radio (1)/Telephone (1)	Plant				
Radio (1)	Landfill				
Emerg. Coordinators' Phone (1) & Pager (1)	Personal				
V. Decontamination Equipment	Weekly Shower & Eyewash check: X'd = OK				
Shower & Eyewash (1)	Analytical Lab			WEEK 1 / WEEK 2 / WEEK 3 / WEEK 4	
Shower & Eyewash (1)	Receiving Lab			WEEK 1 / WEEK 2 / WEEK 3 / WEEK 4	
Showers & Eyewash (10)	Plant			WEEK 1 / WEEK 2 / WEEK 3 / WEEK 4	
Shower (1)	Locker Room			WEEK 1 / WEEK 2 / WEEK 3 / WEEK 4	
Equipment Decontamination -- Wheel Wash (1)	Wheel Wash Bay				
Equipment Decontamination -- Wash Bldg (1)	WWTP				
VI. East Side By-Pass Device					
Maintained in the closed position	Plant				

Personal Protective Equipment (PPE): A large supply of PPE is maintained on-site in the Purchasing storeroom for use by qualified persons.
Respiratory protective equipment can only be issued by the Safety Director to trained and medically fit employees.
In case of power failure, generators on-site can be located by the WER Plant Manager or WWTP Operator.

EQUIPMENT CAPABILITIES & INSPECTION CRITERIA

I. Security
Verify that perimeter fence is intact and secure to prevent unknowing entry to the site.
Verify that warning signs are visable and present to prevent unknowing entry to the site.

II. Fire Extinguishing Systems
Verify that units are at the locations and in the quantities indicated in this inspection report to enable quick access to equipment for fire suppression.
Inspect to determine that all units are maintaining adequate discharge pressure to ensure effective fire suppression.
Verify that maintenance/service contract(s) are being fulfilled by vendor. Inspect the units for deterioration and damage. Replace defective units.
Verify In-Tank foam generating system is charged with foaming solution and has water pressure. Test the flow of foam to tanks.

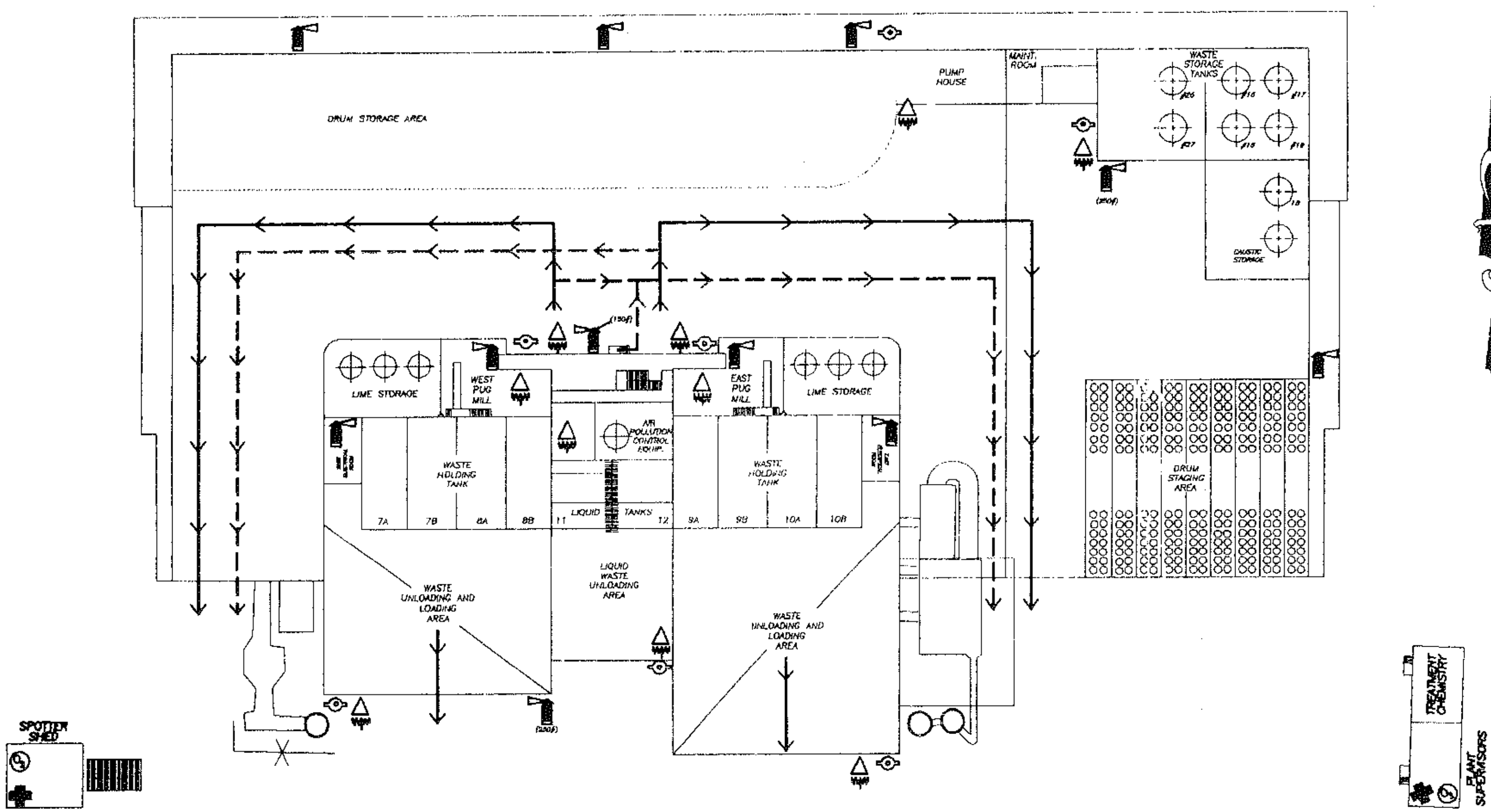
III. Spill Control Equipment
Front End Loader: Determine the present, on-site availability of the equipment to move absorbents or sand and contained/absorbed spill residues.
Sweeper & Water Truck: Inspect the unit to determine its effective operation to clean up contained spill residues.
If mechanical problems exist that would render the unit unavailable for emergency duty, refer the unit to maintenance staff for repairs and fittings for wear, damage, or deterioration.
Verify that visquene and weight is available to block drains and provide containment of spilled materials.
Verify that at least 1 pallet of absorbent is available to soak up spilled, contained material.

IV. Communications & Alarm Systems
Record daily check that phone system and radios are working with a mark on the date to indicate "OK" on the day inspected.
Verify functional status of base stations and radio equipment used in the waste processing area to allow immediate on-site notification/communication about incident.
Verify telephone service provides communications between waste processing plant and Security, Receiving, Lab, and the Emergency Coordinators' phones.

V. Decontamination Equipment
Record weekly check that Showers and Eyewashes are working with a mark on the inspection week to indicate "OK" on the day inspected.
Verify that showers and eyewash are covered properly to provide a clean supply of water to rinse body parts affected by chemicals.
Verify that all areas/equipment are operational to provide water to rinse chemicals from equipment.

VI. East-Side By-Pass Device
Inspect the By-Pass Device on top of the stack in front of the fan to make sure that it is closed and is properly sealed.

MDWTP – EVACUATION ROUTES & EMERGENCY EQUIPMENT LOCATIONS

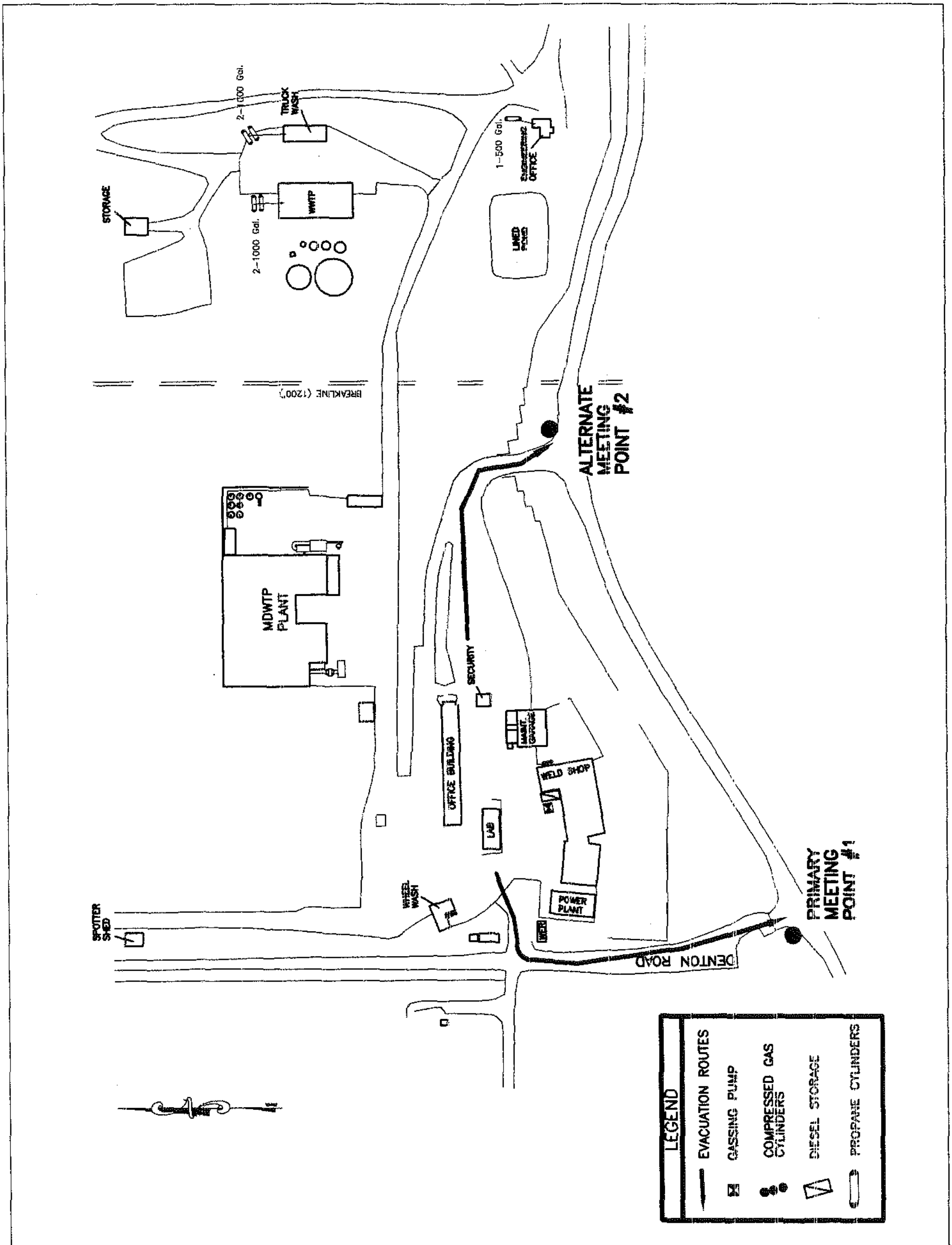


* NOTE: 150# & 250# WHEELED EXTINGUISHERS MAY BE MOVED TO DIFFERENT LOCATIONS FROM TIME TO TIME AND ALL SAFETY EQUIPMENT LOCATIONS ARE APPROXIMATE.

FIRST AID KIT LOCATION –
OXYGEN LOCATION –
EYEWASH / SHOWER LOCATION –
YARD HYDRANT LOCATION –
* FIRE EXTINGUISHER LOCATION –
PRIMARY EVACUATION ROUTE –
SECONDARY EVACUATION ROUTE –

IN THE EVENT OF A FIRE, EXPLOSION, OR A RELEASE, CALL EMERGENCY COORDINATOR.
IN THE EVENT OF A MEDICAL EMERGENCY, CALL 911. THEN CONTACT THE APPROPRIATE MANAGER AND HEALTH AND SAFETY.

THE ENVIRONMENTAL QUALITY COMPANY	LOCATION: EQ-BELLEVILLE		TITLE: EMERG. EQUIP. AND EVAC. ROUTES TREATMENT PLANT
	SCALE: N.T.S.	DATE: 05/03/99	FILENAME: SU-WDIEP



THE ENVIRONMENTAL QUALITY COMPANY	LOCATION: EQ-BELLEVILLE		TITLE: EVACUATION ROUTES
	SCALE: N.T.S.	DATE: 04/26/99	FILENAME: EQBSHED2

ATTACHMENT 5

CLOSURE PLAN

CLOSURE / POST-CLOSURE PLANS

40 CFR 270.14b, 40 CFR 264.112,

AND

MI ACT 451 R504(1)c

TABLE OF CONTENTS

1. INTRODUCTION

A. General Information

This plan details the steps taken to comply with all closure requirements.

B. Closure Performance Standard

Michigan Disposal Waste Treatment Plant must comply with the following performance standards for closure:

264.111 The owner or operator must close the facility in a manner that:

(a) Minimizes the need for further maintenance;

(b) Controls, minimizes or eliminates, to extent necessary to protect human health and the environment, post-closure escape of hazardous waste, constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface wastes or to the atmosphere; and

(c) Complies with the closure requirements of this subpart, including, but not limited to, the requirements of 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601 through 264.603, and 264.1102.

264.178 At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.

264.197 At closure of a tank system, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste and manage them as hazardous waste, unless Section 261.3(d) of this chapter applies. The closure plan, closure activities and cost estimates for closure, financial responsibility for tank systems must meet all of the requirements specified in Subparts G and H of this part.

Paragraphs (b) and (c) do not apply as Michigan Disposal Waste Treatment Plant will conduct a clean closure and maintains secondary containment systems or variance for all tank systems.

264.228 Surface Impoundments - This section does not apply to Michigan Disposal Waste Treatment Plant's activities.

264.258 Waste Piles - This section does not apply to Michigan Disposal Waste Treatment Plant's activities.

264.280 Land Treatment - This section does not apply to Michigan Disposal Waste Treatment Plant's activities.

264.310 Landfills - This section does not apply to Michigan Disposal Waste Treatment Plant's activities.

264.351 Incinerators - This section does not apply to Michigan Disposal Waste Treatment Plant's activities.

264.601-603 Miscellaneous Units - This section does not apply to Michigan Disposal Waste Treatment Plant's activities.

264.1102 Containment Buildings - This section does not apply to Michigan Disposal Waste Treatment Plant's activities.

The closure procedures in Section 3 of this plan detail the work that will be completed to meet those standards, Michigan Disposal Waste Treatment Plant will conduct a clean closure, i.e., no waste will be left in place. This closure will not require any post-closure activities.

2. FACILITY DESCRIPTION

Michigan Disposal Waste Treatment Plant processing facility is located in the southwest corner of its 4.82 acres of licensed property. Michigan Disposal Waste Treatment Plant resides in a 52,500 square foot area.

A. Facility Equipment

The following equipment is located at the Michigan Disposal Waste Treatment Plant processing plant:

1. 3-100 cubic yard hazardous waste/lime storage silos

2. 8 waste treatment/storage tanks

   4 - 267 cubic yard tanks, Tanks 7A, 7B, 10A, 10B

   4 - 215 cubic yard tanks, Tanks 8A, 8B, 9A, 9B

3. 2 - 40,000 gallon sludge receiving tanks, Tanks 11 and 12

4. 2 - pugmills rated at 7,986 gallons of liquid waste per hour, Tanks 14 and 15

5. 6 - 20,000 gallon waste/reagent storage tanks, Tanks 16, 17, 18, 19, 25 and 27

6. 3 - screw conveyor systems:

   1 - dust-to-pugmill conveyors

   1 - liquid-to-pugmill conveyors

   1 - mixture-to-storage building conveyors

8. 4 - Container storage areas:

   East Container Staging Area

   North Container Storage Area

   Southeast Container Storage Area

   Loading/Unloading Bay Staging Areas

9. 2 - Waste storage and treatment buildings each with a 68′ x 68′ loading/unloading area

B. Maximum Inventory

The maximum hazardous waste inventory will consist of:

Hazardous waste to be processed/disposed:

Tank #	Description	Volume
1	Hazardous Waste Dust	100 yd^3
2	Hazardous Waste Dust	100 yd^3
3	Hazardous Waste Dust	100 yd^3
7A	Hazardous Waste to be treated	267 yd^3
7B	Hazardous Waste to be treated	267 yd3
8A	Hazardous Waste to be treated	215 yd^3
8B	Hazardous Waste to be treated	215 yd^3
9A	Hazardous Waste to be treated	215 yd^3
9B	Hazardous Waste to be treated	215 yd^3
10A	Hazardous Waste to be treated	267 yd3
10B	Hazardous Waste to be treated	267 yd3
11	Hazardous Waste to be treated	40,000 g
12	Hazardous Waste to be treated	40,000 g
1B	Scrubber Water	
14	Pug Mill Waste to be treated	
15	Pug Mill Waste to be treated	
16	Liquid Waste to be treated	20,000 g
17	Liquid Waste to be treated	20,000 g
18	Liquid Waste to be treated	20,000 g
19	Liquid Waste to be treated	20,000 g
25	Liquid Waste to be treated	20,000 g
27	Liquid Waste to be treated	20,000 g
Containers	Waste to be treated	82,500 g
SE Storage Area	Waste to be treated	181,800 g

Waste to be treated:

Hazardous Waste Dust	300 yd^3	60,000 g
Hazardous Waste	3988 yd^3	805,524 g
Total:	4288 yd^3	865,524 g

C. Inventory of Auxiliary Equipment

See Contingency Plan: Equipment List

3. CLOSURE ACTIVITIES

A. Schedule of Final Closure:

Michigan Disposal Waste Treatment Plant does not anticipate closure of the waste processing facility until April 1, 2050 or later. However, in the event of an unplanned closure, the following schedule should be followed:

1. Removal, treatment, and disposal of waste inventory	10 days
2. Dismantling the facility and segregation of the disassembled plant parts that are intended for salvage	5 days
3. Hydroblast waste treatment/storage tanks	5 days
4. Steam clean the salvaged parts in the staging area	7 days
5. Hydroblast concrete and asphalt surfaces	5 days
6. Disposal of waste wash water	10 days
7. Sampling and testing of soils under cracks in concrete/asphalt	10 days
8. Disposal of contaminated soils from under concrete/asphalt	10 days
Total	**62 days**

B. Closure Procedures

1. Removal, Treatment, and Disposal of Waste Inventory

Waste Inventory requiring treatment will be processed in the treatment plant and disposed of at a properly licensed facility. The volumes to be treated are identified in the closure cost estimate (see Section A-31 of the permit application). Waste Inventory that cannot be treated on site will be transported by licensed waste transporters to properly licensed treatment, storage and disposal facilities.

2. Dismantling the facility

The plant will be disassembled by a qualified contractor to be selected by Michigan Disposal Waste Treatment Plant management.

During disassembly of the processing facility all equipment leaving the site will be decontaminated by steam cleaning or pressure washing. Provisions will be made to contain and collect wash water generated during decontamination, as described in section 4, below.

Wash water is analyzed, treated, and disposed of at a properly licensed treatment, storage and disposal facility, or will be treated at the Wayne Disposal Site #2 Landfill-owned on-site Waste water treatment plant. Each tank, screw conveyor, pugmill, pump and liquid feed pipe will be disconnected and moved to the adjacent drum storage area, either the North or East pad may be used, the steam cleaning or pressure washing as described in Section 4 below.

3. Cleaning of tanks

The sides and bottom of the waste treatment/storage tanks and sludge receiving tanks, 7A, 7B, 8A, 8B, 9A, 9B, 10A, 10B, 11, & 12 will be hydroblasted to remove all solid and sludge deposits. Cleaning time for the ten tanks is estimated to be 120 hours. The cleaning equipment will generate approximately 12 gallons of washwater per minute resulting in 86,400 g of accumulated washwater.

Following initial hydroblasting, the referenced tanks will be steam cleaned and rinsed as described in section 4, below.

4. Steam cleaning of Equipment

A high-pressure steam and detergent cleaning apparatus will be used to clean the plant components equipment. After the initial cleaning, all equipment will be rinsed twice with high-pressure steam. All steam cleaning will be performed on the drum storage pad, or in the case of tanks 7A, 7B, 8A, 8B, 9A, 9B, 10A, 10B, 11 and 12, within the tanks themselves. The wash water will be collected in the sumps in the drum storage areas.

Items to be cleaned include, but are not limited to, the following:

- 6 waste/reagent storage tanks
- 3 hazardous waste/lime storage silos
- 2 sludge feed tanks
- 8 waste treatment/storage tanks
- 2 pugmills

- 6 screw conveyors
- 1 scrubber equipment
- 2 baghouses
- miscellaneous piping

Cleaning time for a crew of three is estimated to be 1 hour per rinse per waste storage tank, storage silo, or sludge feed tank, 1 hour per rinse per pugmill or conveyor, and 10 minutes per rinse per pipe. Approximately 5 gallons of waste wash water will be generated per minute, accumulating 47,250 gallons of washwater. Up to 157.5 working hours will be required from a three-man crew.

After decontamination metal components may be sold for scrap or reused for their original purpose.

5. Hydroblasting Concrete and Asphalt Surfaces

The concrete and asphalt surfaces in and around the plant will be decontaminated by initial hydroblasting with detergent and water followed by two clean water rinses. All secondary containment areas, drum storage areas, sumps, loading areas, ramps, and roadways will be decontaminated. Approximately 50,000 square feet of concrete and asphalt will be hydroblasted by a three-man crew over the course of 24 hours.

6. Disposal of wash water

The decontamination process will cause no escape of hazardous waste or hazardous waste constituents. All washwater will be immediately collected from plant surfaces and sumps in the North, East, West Bay, East Bay and Southeast Container Storage areas.

Collected wastewaters will be sampled prior to treatment or disposal. Washwaters will be disposed of by transferring to an on-site wastewater treatment plant jointly operated by Wayne Disposal Site #2 Landfill and Michigan Disposal Waste Treatment Plant under industrial waste water discharge permit number D-11202 with the Wayne County Department of Public Works. The facility is designed for the pretreatment of hazardous and non-hazardous landfill leachate. A two stage process involving metals precipitation and biological treatment is followed by granulated carbon polishing if necessary. The plant is designed for extremely high metal and organic loadings and will be capable of treating washwaters from closure.

Alternately, a licensed hazardous waste transporter may transport the washwaters to a licensed hazardous waste water treatment facility for pre-treatment prior to discharge to a POTW, deep well injection, or stabilization. The options are presented in order of anticipated relative cost and preference. Any properly licensed hazardous waste disposal facility should be considered for receipt of the washwaters.

7. Sampling and Testing of Soil, Concrete, Asphalt and Washwaters:

a) Sampling - A soil sampling and testing program will be undertaken. The purpose of this program will be to determine what soils, if any, around the plant are contaminated and require disposal.

After plant decontamination, background soils will be sampled at four locations. Soil samples will be collected at any open cracks or fissures in the concrete or asphalt throughout the plant. Soil sampling under open cracks will be conducted by taking grab samples from 6"-12" below the asphalt or concrete surface. If analysis verifies that no contamination exists, then no further sampling will be required. If the samples show contamination in the soil, test borings will be required.

TABLE I

Organic Parameters	Detection Limit
Butanol	1 ppm
Amyl Alcohol	1 ppm
Xylene	0.01 ppm
Toluene	0.01 ppm
Parachloroethylene or Tetrachloroethylene	0.01 ppm
Trichloroethylene	0.01 ppm

Inorganic Parameters	Detection Limit
Arsenic	0.01 ppm
Barium	0.01 ppm
Cadmium	0.01 ppm
Chromium	0.01 ppm
Lead	0.01 ppm
Mercury	0.01 ppm
Selenium	0.01 ppm
Silver	0.01 ppm

The sampling frequency used to verify complete excavation of contaminated soils will incorporate continuous sampling of the underlying soils for the first five feet in each boring and at 2.5 foot intervals thereafter to the full extent of the boring. The depth and elevation of the soil samples will be determined from these test borings. As the soil samples are collected, each soil sample will split into two portions. Each of these portions will be sealed in jar containers, packed in ice and transported to an analytical laboratory for chemical analyses.

All test borings will be drilled by an experienced test boring driller under the full time supervision of an independent registered professional engineer or his/her representative. Careful cleaning of all sampling tools will be undertaken before the acquisition of samples for analysis to prevent cross contamination. This cleaning will include thorough scrubbing of the sampling tool with a mild detergent followed by a distilled water rinse. Upon completion, all test borings will be filled with bentonite or a non-shrinking cement grout.

b) Chemical Testing and Evaluation- Chemical analysis of the soil samples discussed above will consist of analysis for all parameters shown on Table I. The constituents in this list are based on the principal waste constituents and include items which are soluble and easily conveyed or diffused through water as well as being volatile. The constituents were chosen as being representative of the worst case indicators (due to their mobility and prevalence in wastes accepted at this site) of failure of the facility's secondary containment systems.

Analysis of these parameters will be performed according to the appropriate US-EPA SW-846 test method. One portion from each of the sample pairs to be tested will be analyzed. All monitoring parameters, which do not exceed the detection limits from a particular specimen, will be removed from further consideration at that location. Those found to be above the detection limit will be compared to the four background results using a students t-test at the 5.0 % significance level (one-tailed test). Background data below the detection limit will be assumed at the detection limit for this analysis. A representative t-test is presented in Basic Statistical Methods for Engineers and Scientists by A.M. Neville and J.B. Kennedy (International Textbook Company, 1964).

If any parameter(s) fail this test on the first specimen of any sample i.e., a statistically significant difference is observed, then the sample will be considered contaminated and deeper soil samples will be tested in a similar manner but only for the parameter(s) which were found to exist in statistically significant concentrations in the sample above.

If a sample is determined to be contaminated, a series of 4 samples will be taken North, East, South and West of the contaminated sample in a 20-foot radius. Sampling will be conducted as described above. If the additional samples are deemed to be clean, excavation of the contaminated area will include the foot radius only. If one or more additional samples are also contaminated, another 20-foot radius will be specified and the procedure repeated.

Background Levels in Soils

Four background samples will be obtained from the closest undisturbed soil of similar type. The metals data from each of the background samples will be compared to the default background concentrations listed in MERA Memo 15# to determine if any standard has been exceeded. If the applicable MERA standard is exceeded for any metal, WDI can, at its discretion, demonstrate that the concentration is within the normal background concentration for soils at the site. If WDI elects to make this demonstration, a plan will be submitted to MDEQ that outlines the strategy for collecting and analyzing native background samples and for establishing a statistically valid range for background concentrations. If the concentrations are found to be within native background ranges, then no corrective action will be required.

Generic or site-specific background concentrations are not applicable to volatile and semi-volatile organics. For these compounds, WDI will compare measured concentrations to MERA Memo #8 (residential) or MERA Memo #14 (commercial, industrial) risk-based clean-up standards (or whatever MERA standards are in use at the time of closure) depending on which standards are appropriate for the future land use at the facility.

If the applicable MERA standards are exceeded and a site-specific background demonstration is either not successful or not possible, WDI will submit a plan to mitigate the contaminated area to MDEQ. The plan shall include a description of the apparent extent of the problem, a proposed remedy, and methods for demonstrating clean closure.

8. Disposal of Contaminated Concrete, Asphalt and Soil:

If any concrete, asphalt or soil is deemed to be contaminated these materials will be transported from the site and treated and disposed of in a properly licensed hazardous waste treatment, storage and disposal facility.

C. Disposal Locations

Several disposal facilities are available for the various types of hazardous wastes that will be created during closure. The following is a list of the closest facilities and the type of waste they may accept from closure activities.

TYPE	FACILITY
Solid Wastes	Hazardous Waste Landfill
Liquids	Treatment Facility
Flammable liquids	Solvent Reclamation/Fuel blending Facility

D. Partial Closure Plan

In the event it becomes necessary to close one or more, but not all hazardous waste management units, the following steps will be required:

Hazardous Waste Management Unit	Closure Steps*
Tank 1	1, 2, 4, 6
Tank 2	1, 2, 4, 6
Tank 3	1, 2, 4, 6
Tanks 7A & 7B	1, 2, 3, 4, 6
Tanks 8A & 8B	1, 2, 3, 4, 6
Tanks 9A & 9B	1, 2, 3, 4, 6
Tanks 10A & 10B	1, 2, 3, 4, 6
Tank 11	1, 2, 3, 4, 6
Tank 12	1, 2, 3, 4, 6
Tank 1B	1, 2, 4, 6
Tank 14	1, 2, 4, 6
Tank 15	1, 2, 4, 6
Tank 16	1, 2, 4, 6
Tank 17	1, 2, 4, 6
Tank 18	1, 2, 4, 6
Tank 19	1, 2, 4, 6
Tank 25	1, 2, 4, 6
Tank 27	1, 2, 4, 6
North Container Storage Area	1, 5, 6
East Container Storage Area	1, 5, 6
Southeast Container Storage Area	1, 5, 6
Loading/Unloading Bays	1, 5, 6

* The steps listed correspond to the descriptions under section B - Closure Procedures found in this Closure Plan.

Post-Closure Plan

A post-closure plan for Michigan Disposal Waste Treatment Plant is neither necessary nor required. All hazardous wastes will be removed as part of the closure. The facility is also a subset of a much larger hazardous waste management area owned by ~~Ford Motor Company~~ Wayne Disposal, Incorporated and operated by Wayne Disposal Site #2 Landfill. The larger facility, Wayne Disposal Site #2 Landfill, has established a post-closure fund to monitor groundwater around the site for thirty years after the landfill closes. Michigan Disposal Waste Treatment Plant rests completely inside the monitored Wayne Disposal Site #2 Landfill area.

modified by MDEQ 9/10/99

ATTACHMENT 6

WASTE DELIVERY PROCEDURES

1. Traffic Pattern

The internal road network, traffic pattern and control devices are shown in the engineering plans prepared by Midwestern Consulting, Inc. for Wayne Disposal Site #2 Landfill (submitted in March 1995).

Inbound Traffic

Hazardous waste transport vehicles enter the facility through the main entrance area located at 49350 N. I-94 Service Drive, Belleville, and approach the security building by a path up the middle of a large paved apron. The vehicle continues along this central corridor onto the truck scales for weigh-in. After weigh-in the driver untarps the load, if necessary, for sampling. The tarp is then replaced to securely cover the load during the rest of the time that the vehicle waits to be emptied.

Once inside the facility all vehicles must stop at the hazardous waste reception area for processing of manifests, other shipping documents and for load inspection. Bulk loads are sampled at this point whereas drums and containers must be unloaded at the plant for sampling. After sample screening at the laboratory in the Waste Receipt Building indicates that the shipment may be accepted, hazardous waste transporting vehicles waiting to be offloaded may be staged on-site. If the laboratory screening indicates the load must be rejected, the vehicle circles the Waste Receipt Building and then exits the facility.

When the operations are ready to unload the waste, the truck driver is instructed to proceed via the internal roadway system to the appropriate waste unloading area within the facility. Drivers are directed to offload their shipment to either:

1. The treatment / storage boxes (Tanks 7A, 7B, 8A, 8B, 9A, 9B, 10A, 10B)
2. The sludge boxes (Tanks 11 or 12)
3. A liquid storage tank (Tanks 18, 19, 20, or 21)
4. A dust silo (Tanks 1, 2, 3, 4, 5, or 6)
5. The container staging or storage areas
6. The northwest waste unloading platform for loads meeting LDRs which go to Wayne Disposal's HW Cell.

Certain remedial wastes are brought into the site via an alternative entrance and route for delivery directly to the Wayne Disposal Cell or the waste water treatment plant.

All incoming traffic will approach Michigan Disposal Waste Treatment Plant from the waste reception area to the south. Roughly 35 shipments weekly of dust used as treatment reagents are offloaded to silos on the north side of the plant. Roughly 10 shipments weekly of bulk liquids to be stored will be delivered to the loading racks on the plant's north side via the container storage area to the east.

Roughly one hundred trucks bearing sludge or bulk liquids to be treated will approach and leave the plant from its south side daily. Roughly one hundred containerized waste shipments will be delivered to the plant's east side or southeast container storage area daily.

Outbound Traffic

Traffic will exit through the main gate after stopping by the Waste Receipt Building to the south of the waste management areas. All empty waste transporting vehicles (except drum vans) will proceed through Wayne Disposal Site #2 Landfill's wheel wash facilities then stop at the Waste Receipt Building to weigh out. Drum or container vans proceed directly to the scales. The driver finalizes recordkeeping with the manifest agent and then exits.

Deliveries of non-hazardous solidified treatment residuals to offsite facilities will weigh out over the scales and exit the facility.

On-site deliveries of hazardous solidified treatment residuals from Michigan Disposal Waste Treatment Plant to Wayne Disposal Site #2 Landfill are routed north along the road immediately west of Master Cell VI (MC VI) to the unloading platform in the northwest corner of MC VI.

The road surfaces around the laboratory and office buildings and also the south side of Master Cell VI are built on sand which is naturally occurring above the clay. Slag and gravel were used for road base and this entire area is surfaced with asphalt. Calculations show this road section to be nearly identical to design requirements and its condition bears this out as it is performing quite well without distress.

2. Estimated Volume of Traffic

Estimated Number and Types of Vehicle

Type of Waste Hauling Vehicle	Number Per Day
Waste Hauling Trailers	70-80
Waste Hauling Tankers	20-30
Van Trailers Hauling Containers	100
Pneumatic Trailers	5

Because of the industrial nature of road use around the plant, use a traffic index of 10 for pavement design.

3. Traffic Control and Traffic Signals

All waste transport companies which frequently use the facilities receive a written notification that:

1) Wastes shipped to the facility must be placed into closed containers or covered during transportation. The structural integrity of the waste containers must prevent leakage while in transit.

2) All trucks transporting hazardous waste to or from the facility shall use Rawsonville Road to enter and exit the facility.

3) Trucks transporting hazardous waste to or from the facility shall not park or stand on the I-94 Service Drive and

4) Following sampling at the facility, the trailer shall be closed or retarped and shall remain closed while waiting to empty.

The Michigan Disposal Waste Treatment Plant's site is completely surrounded by a much larger waste management facility, Wayne Disposal Site #2 Landfill. Wayne Disposal Site #2 Landfill operates a hazardous waste landfill facility. The entire landfill site is completely surrounded by fences. As per 40 CFR Part 264.14(c), warning signs are posted on the fence surrounding the facility.

The main entrance is clearly marked with a facility identification sign and there are signs which instruct truck drivers how to proceed safely along the waste delivery corridor. Further verbal directions are provided to the driver by the manifest agents in the Waste Receipt building when their paperwork is reviewed. A standard "Stop" sign is posted at the exit to the N. I-94 Service Drive.

At all times, a security guard is posted at the security building to monitor vehicle entry and to exclude any unauthorized person from the site.

4. Access Road Surfacing and Load Bearing Capacity

Bearing capacity of roads - Michigan Disposal Waste Treatment Plant

Existing road construction:

Around the plant and south of MC VI

1. 4 to 6 inches Asphalt Concrete
2. Approximately 1 ft. of slag and coarse aggregate
3. Approximately 10 ft. of Native Sand

Refer to the attached reference material (Flexible pavement structural section design guide for California cities and counties) about this design method. The following variables are estimated as follows:

Traffic index: 10

Design life: (Assumed in method) 10 years

Material "R" values:

Native sand: R=30

Slag and coarse aggregate: R=70

Analysis of adequacy of construction:

TI =10

Subgrade R=30

Base R=70

Gravel Equivalent(GE) for surfacing=0.0032(TI)(100-R)=0.0032(10)(100-70)=0.96

Gravel Equivalent factor(G_f)=2.5(5.14/TI)$^{0.5}$=1.79

Recommended asphalt thickness=GE/G_f=0.96/1.79=0.54 ft =6.5 inches

GE required for road base=0.0032(10)(100-30)=2.24

GE provided by asphalt=1.79 x 0.5=0.9

GE to be provided by road base=2.24-0.9=1.34

Thickness of base required=1.34/1.10=1.2 ft =14.5 inches

G_f(for R=70 material)=1.1

Summary:

	Design	Existing
Asphalt	6.5	4-6
Slag and Coarse Aggregate	14.5	12

The road may not provide 10 years of service; however it is quite stable. Refer to attached computations for other roads used.

Bearing capacity of roads - Near garages and trailers

Existing road construction:

1. Approximately 6 inches of Asphalt Concrete
2. Approximately 12 inches of Broken Concrete and Gravel
3. Native Sand

Traffic index: 10

Design life: (Assumed) 10 years

Material "R" values:

Native sand: R=30

Broken Concrete/Gravel: R=70

Analysis of adequacy of construction:

Gravel Equivalent(GE) for asphalt=0.0032(TI)(100-R)=0.0032(10)(100-70)=0.96

Gravel Equivalent factor(G_f)=$2.5(5.14/TI)^{0.5}$=1.79

Recommended asphalt thickness=GE/G_f=0.96/1.79=0.54 ft =6.5 inches

6 inches of Asphalt were used

GE required for road base=0.0032(10)(100-30)=2.24

GE provided by asphalt=1.79 x 0.5=0.9

GE to be provided by road base=2.24-0.9=1.34

Thickness of base required=1.34/1.10=1.2 ft =14.5 inches

G_f(for R=70 material)=1.1

Approximately 12 inches of broken concrete/gravel were used.

Summary:

	Design	Existing
Asphalt	6 inches	6.5 inches
Slag and Coarse Aggregate	12	14.5

This road should provide about 10 years of service life before resurfacing is necessary, and is quite stable.

FLEXIBLE PAVEMENT

STRUCTURAL SECTION DESIGN GUIDE

FOR

CALIFORNIA CITIES AND COUNTIES

PARTIAL DOCUMENT AS REFERENCE

(REVISED JANUARY 1973)

Acknowledgment

This revised guide was prepared through the cooperative efforts of the County Engineers Association of California, the league of California Cities and the California Division of Highways. Much appreciation is expressed to the various members and personnel of the above organizations who were responsible for the original design guide which was published in July 1968.

This revised version was prepared by George Sherman, Robert Smith, Joseph Hannon, George Dick and Karl Baumeister of the Materials and Research Department of the California Division of Highways. Credit should also be shared with Paul Wagner and George Ebenhack of the Design Department, Jack Kassel, and Herman Woodruff of the City and County Liaison Department of the California Division of Highways. Credit should also be shared with Paul Wagner and George Ebenhack of the Design Department, Jack Kassel and Herman Woodruff of the City and County Liaison Department of the California Division of Highways, and W.R. Lovering of the Asphalt Institute, for their review and comment. Appreciation is also extended to the City and County Engineers who have reviewed the rough draft and contributed to this publication by their suggestions.

Foreword

This booklet is intended to provide a concise and useful tool to the designer of city streets and county roads.

The information in this guide has been updated since the last printing in July 1968, but the concepts and methods used herein are not new. However, a new section has been added which covers the design of full depth asphalt concrete pavements.

The guide is based on the results of extensive studies, tests and numerous reports by various agencies concerning the many factors affecting the structural design of roadway sections.

This guide should prove quite helpful to many cities and counties irrespective of the amount or lack of laboratory facilities and testing equipment.

Suggestions for improvements to this guide may be directed to either the County Engineers Association of California or the League of California Cities.

Estimation of T.I. according to the road type

In the absence of more detailed knowledge, traffic may be estimated by considering the type of facility to be designed. Estimates of traffic made in this manner tend to be inaccurate, and for this reason, should allow for a safety factor. The estimated Traffic Index should be justified by a description of the facility, the area it serves, and the normal types of traffic carried. The table below lists several road categories and the T.I. which might be expected to correspond with these categories. The last four categories in the table are difficult to estimate. Since roads in these categories are more critical with regard to repair, due to heavier traffic, the T.I. should be estimated using either the standard method or the chart shown in figure 1.

Type of facility	T.I
Minor residential streets and cul-de-sacs	4
Residential streets	4.5
Residential collectors and minor or secondary collectors	5
Major or primary collectors providing for traffic movement between minor collectors and major arterials	6
Farm-to-market roads providing for the movement of traffic through agricultural areas to major arterials	5-7
Commercial roads(arterials serving areas which are primarily commercial in nature)	7-9
Connector roads(highways and arterials connecting two areas of relatively high population density)	7-9
Major city streets and thoroughfares and county highways	7-9
Streets and highways carrying heavy truck traffic. This would include streets in heavily industrialized areas	9+

Estimation of R-value using soil classification

Rough estimates of R-value can be made using some simple soil classification tests in conjunction with sand equivalent (SE) test. Each soil type (e.g. sandy clay, etc.) roughly encompasses a certain R-value range. The R-value range for a soil type may be narrowed by knowing more about the soil's plasticity and by knowing its sand equivalent value (Test method no. Calif 217). Soil classification sheets and triangular chart (Figures 3 and 4) are included as aids. To classify soils on the triangular chart (Figure 4), a sieve analysis and hydrometer analysis are necessary (Test Method Nos. Calif. 201, 202, and 203).

When the soil classification has been determined from figure 4, the chart in figure 5 may be used to approximate the R-Value. In this chart, the curves representing the various soil types show a stylized approximate frequency distribution of R-values for this particular type soil.

For fine grained materials, the upper tail or high R-value portion of the curve represents lower plasticity, relative to the soil type, while the lower tail represents soils of the same type having higher plasticity. The sand equivalent values provide additional subdivisions within the chart.

For a particular SE value, chances are good that the R-value for the same material will be as high or higher than the R-value designated by the corresponding dashed line. The converse, however, is not true since it is possible for a material to have a high R-value with a relatively low SE.

The curves for coarse-grained materials are affected in the same manner, by the presence of clay, with the lower tail representing materials with little or no clay, the lower tail represents hard, smooth-surfaced and poorly graded(well sorted) material while the upper tail represents rough-surfaced and well graded material.

The use of this chart must be tempered with good judgment and it should always be borne in mind that R-values obtained in this manner are estimations only. The reasoning behind these estimations should be fully documented in the materials report to provide to reviewers with as much basic data as possible.

ATTACHMENT 7

CONTAINER STORAGE PLANS AND SPECIFICATIONS

CONTAINER STORAGE

1. STAGING AND ACCEPTANCE OF CONTAINERIZED WASTE

Trucks transporting containerized waste entering the facility are checked to ensure that they have arrived at the correct facility and that the waste represented on the manifest has an active pre-approval. The driver is then directed to the staging area located within the containment structure of the East Container Storage Area, which provides secondary containment in the event of a leak or spill. Containers are off loaded using fork-trucks or other container/drum handling equipment.

After containers are visually inspected to ensure that they are in good condition and not leaking, they are placed in rows within the staging area. The rows are approximately 4 to 6-foot wide and separated by approximately 2-foot wide aisles. Containers will not be double stacked or placed in standing water.

Once the containers destined for receipt at the facility are removed from the trailer, the trailer is held and the Driver is asked to remain on-site while sampling and analysis is performed. The Sampler labels the samples and provides the samples and all shipping documents to the laboratory for review and pre-acceptance testing. The analysis required for acceptance of the waste is performed and the waste is either deemed acceptable or rejected in accordance with the procedures and criteria specified in the Waste Analysis Plan (WAP).

If the containers are acceptable, the laboratory assigns a treatment, storage, or disposal designation. After the truck has been unloaded, the driver is directed to the outbound scale. The driver returns the completed facility documents to the Manifest Agent. The manifest information is completed using the computer system. The manifest is signed, dated, disassembled, and the driver is given the "Transporter" copy.

Off-specification materials and rejected loads are managed following the procedures specified in the WAP. If some or all of the containers are rejected, it is noted on the manifest. Rejected containers are loaded back onto the waiting truck and the driver is provided with the appropriate documents and allowed to leave the facility.

For container storage, the facility management evaluates the compatibility of the waste with the storage unit materials of construction and with wastes already stored therein. The evaluation is based upon vendor or engineering data, materials of construction, and a knowledge of the waste and its characteristics from the Generator Waste Characterization Report. Stored containerized wastes are segregated with respect to ignitability, corrosivity, reactivity, and compatibility. The following lists typical hazard classes for wastes in the North Container Storage Area:

- Corrosive, acids;
- Corrosive, alkali;
- Ignitable, (flammables);

- Ignitable, (oxidizers)
- Non-regulated / inert; and
- Toxics (metals, chlorinated solvents, pesticides, etc.).

Based on the hazard assessment of the waste, the containerized waste is organized into segregated storage areas within the North Container Storage Area.

2. STORAGE OF CONTAINERIZED WASTES

a. East Container Staging Area

The East Container Staging Area is located directly east of the waste treatment plant and immediately west of the east retaining wall. The East Container Staging Area is 92 feet measured east to west and 150 feet measured north to south. An irregular shape is created by the presence of the tank farm in the northeast corner of the East Container Staging Area. The area is designed to hold an inventory of 600 containers or 33,000 gallons of liquid waste. Containers are not double stacked. Once containers are accepted by the facility, they are generally moved to the North Container Storage Area. In the event containers are not immediately moved, the total quantity of containers in storage and staged in the East Container Staging Area and North Container Storage Area does not exceed 1,500 containers or 82,500 gallons.

Run-on is prevented by the north retaining wall, east retaining wall and a 3-inch curb on the west side of the East Container Storage Area. Run-on from the south is prevented by the container staging area being at a higher elevation than the surrounding pavement. Run-off is prevented by an approximately 1 percent slope to the east and north, combined with a drainage trench along the east wall. The containment area is designed to hold a 100 year storm and 10 percent of the maximum quantity of containerized liquid waste. Containers are stored in a manner that will contain potential leaks/spills within the staging area. The container staging area is inspected at least once per day. Accumulated liquids collected in the containment structure or trench is removed upon detection.

b. North Container Storage Area

The North Container Storage Area is located directly north of the waste treatment plant, beneath a canopy and immediately south of the north retaining wall. The North Container Storage Area is 225 feet long, running from the west retaining wall to the unloading stations for the tank farm, and 45 feet wide measured perpendicularly from the north retaining wall. The area is designed to hold a maximum of 1,500 containers or 82,500 gallons of containerized waste. The waste is stored in rows running North to South approximately 4 to 6-foot wide separated by approximately 2-foot wide aisles. Containers are not double stacked.

Drums are placed into the storage area on pallets or directly onto the concrete slab using a fork-truck or other container/drum handling equipment.

The storage area is covered which prevents precipitation from entering. Run-on is prevented from entering the storage area by the north retaining wall, the west retaining wall and a 3-inch curb on the south and east side of the storage area. Run-off from the area is prevented by the same four structures. The storage area is sloped approximately 1 percent to the north where a drainage trench serves as a collection point for liquids in the event of spills or leaks in the storage area. Containers are stored in a manner that will contain potential leaks/spills within the curbed storage area.

The container storage area and trench are inspected at least once per day. Accumulated liquids collected in the trench will be removed with a vacuum truck.

c. Southeast Container Storage Area

Interim status was obtained from USEPA for the storage of only carbamate wastes in the Southeast Container Storage Area (SECSA) on March 15, 1995 with submission of the MDWTP's carbamate notification to USEPA. It is anticipated that in the Spring of 1996, USEPA will grant RCRA permit status under 40 CFR 264 to the MDWTP for the storage of only carbamate wastes in the SECSA. At the time of USEPA permit issuance for RCRA permitted storage of carbamates under 40 CFR 264, MDEQ will not function as the regulatory authority for the storage of carbamate wastes in the SECSA. When MDEQ adopts the carbamate waste codes (expected to occur in the Summer of 1996), MDEQ will then assume regulatory authority over the storage of wastes in the SECSA. The SECSA is designed and operated to meet the secondary containment requirements of 40 CFR Subpart I with the exception of the asphalt base. No wastes containing free liquids will be stored in the SECSA until the base has been upgraded to an impervious material.

The Southeast Container Storage Area (SECSA), located approximately 350 feet to the southeast of the treatment plant yard, is shown on the attached MDWTP Site Plan. The SECSA is approximately 310 feet measured east to west and 160 feet measured north to south. The area is designed and used primarily for the storage of large containers, e.g., roll-off boxes, dump trailers, box vans containing smaller containers. The design capacity of 181,800 gallons equates to 30, 30-cubic yard dump trailers. Thirty cubic yard dump trailers are one of the most commonly use containers by transporters delivering waste to the facility and by the facility itself. The attached drawing, entitled S.E. Storage Area, depicts 30, drawn-to-scale, containers and trailers of various sizes, randomly arranged along the concrete dolly leg pads.

The asphalt base of the area is free of cracks and gaps and is sufficiently impervious to contain leaks, spills, and accumulated liquid until the collected material may be removed. However, as described above, wastes containing free liquids will not be stored in the SECSA until the base has been appropriately upgraded. The base slopes toward two catch basins. Catch basin 1 drains to catch basin 2 and catch basin 2, having no outlets, serves as a blind sump (see the S.E. Storage Area figu

A pump with an automatic float switch automatically pumps accumulated liquid to the WWTP tank system via a double contained line that is shown on the S.E. Storage Area figure. Alternatively, accumulated liquid may also be collected from the sump and managed in the storage or treatment tanks at the MDWTP or other appropriately permitted facility.

The containment capacity of the SECSA up to the 701 elevation shown on the S.E. Container Storage figure is over 63,000 gallons. The capacity is well in excess of 10% of the total container capacity of the area. Run-on is minimized by the above-grade lip of the asphalt base on the northern boundary of the SECSA, a four inch curb on the eastern boundary, a six inch curb on the southern boundary and a six inch curb on the western boundary (see the S.E. Storage Area figure).

The SECSA is inspected daily and is identified on the daily inspection form. Containers in storage at the SECSA are tracked using the MDWTP container inventory system. The base is maintained free of leaks and spills. Detected leaks and spills are immediately cleaned up. Aisle space in the SECSA will be maintained in accordance with 40 CFR 264.35 and containers in the SECSA will be closed or covered during storage and properly labeled. Groundwater monitoring is provided for the SECSA by existing wells. Data from these wells will be added to the existing reporting that is currently performed by MDWTP and submitted to MDEQ.

d. Management of Liquids Collected in Container Storage Areas

As stated above, the container storage areas are inspected at least daily. Accumulated liquids observed in the containment structure are removed shortly after detection. Liquids may be removed by pumping to the sludge receiving tanks, tank trucks or by a vacuum truck. Removed liquids are managed either through the waste treatment plant or through the on-site wastewater pre-treatment plant.

Michigan Disposal Waste Treatment Plant operates a wastewater pre-treatment plant under a Class D Industrial Wastewater Discharge Permit issued by Wayne County Department of Public Works. Liquid collected in the container storage areas is specifically mentioned as a source in the permit. The pre-treatment plant is designed to precipitate heavy metals and biologically treat organic contaminants prior to discharging effluent to the Wayne County Sanitary Sewer System, feeding the Wyandotte Treatment Plant. The pre-treatment plant was designed to treat hazardous waste leachate from Wayne Disposal Site #2 Landfill and can treat intermittent flows from Michigan Disposal Waste Treatment Plant container storage areas.

Michigan Disposal Waste Treatment Plant and Wayne County perform regular monitoring of the effluent to demonstrate compliance with pre-treatment permit conditions.

3. REMOVING WASTE FROM CONTAINERS

a. Removing Liquid Waste From Containers Using a Vacuum Truck or Pump

A pump or vacuum truck may be used to remove liquids from containers. The pump or vacuum truck is staged next to or within the North Container Storage Area or East Container Staging Area and a suction hose tipped with a wand, is walked down a row of compatible waste containers to remove liquids. The bung (or the entire container lid if a bung is not present), is removed from each container in a row. The operator inserts the wand into the liquid waste, and transfers the liquid to the truck waste tank. As each container is emptied, the operator moves to the next container of the same waste stream, or compatible waste type and continues until the specified containers have been emptied. At no time are open drums containing waste left unattended. If the operator must leave for any reason, the tops or bungs will be replaced on the containers that have not been emptied.

After emptying the specified containers, the operator drives the truck to the pump unloading station and pumps the waste into the tank farm or the operator drives the truck to the waste treatment/storage tanks and gravity unloads the waste into the appropriate tank.

b. Removing Waste From Containers using a Fork Truck

If a vacuum truck or pump is not used, a fork truck is used to pick up the container(s) and transport them to the appropriate waste storage/treatment tank. The operator removes the entire lid or top of the container and the drum grappler inverts the drum over the sludge receiving tank, decanting the contents into the tank. After the operator visually confirms the container is RCRA empty, the container is righted and returned to the East Container Staging Area.

c. Removing Waste From Hard To Empty Containers

Wastes are occasionally received in drums (typically) that cannot be removed from the container using the methods described above in paragraphs 3.a and 3.b. The hard to empty containers are removed from storage and staged in front of the treatment tanks on either side of the treatment plant. Up to 100 containers may be staged/stored in both plant loading/unloading bays with care taken to ensure proper aisle space. The attached figure, MDWTP Facility Drawing, shows a typical storage arrangement of containers in the east bay.

Staged containers are picked up with a container crushing implement attached to a backhoe. The container is then placed over the appropriate treatment tank and crushed into the tank. The destroyed container is also deposited into the tank for appropriate treatment with the batch.

d. Removing Waste From Large Containers

Large containers such as roll-off boxes or dump trailers are emptied while still attached to a transport vehicle. To empty, the containers are opened on one end, the other end is raised and the waste slides out into a treatment tank. At the MDWTP, large containers are typically stored in the SECSA.

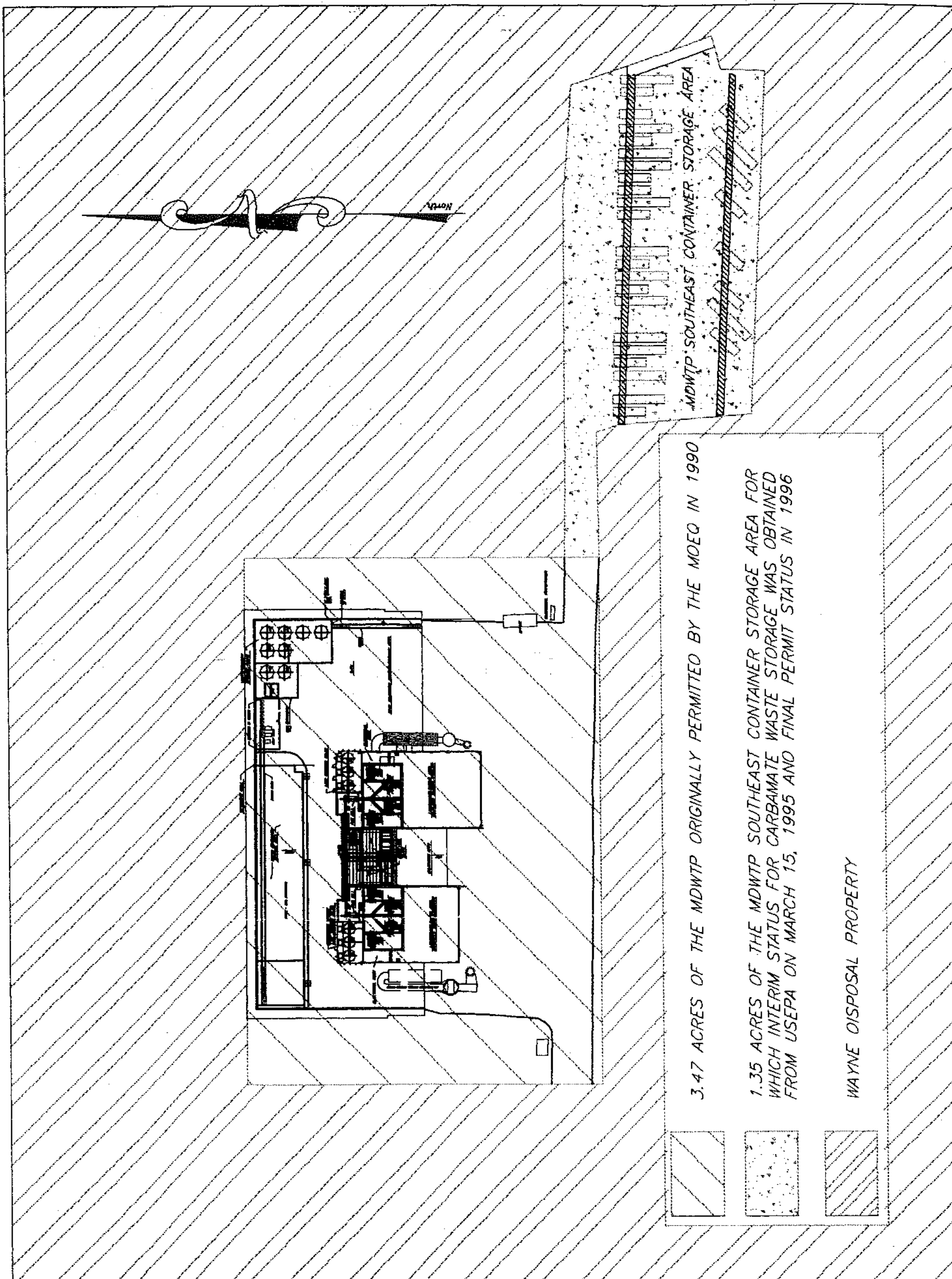
4. DISPOSAL OF EMPTY CONTAINERS

After the containers are emptied, the operator confirms that the container is RCRA empty through a visual inspection. The containers are then loaded into a dump truck or roll-off box, compacted (if compacted a backhoe is typically used), and subsequently transported to a permitted landfill for disposal or to an appropriate recycling facility. Dump trailers and roll-off containers are reusable. After large containers are determined to be RCRA empty, they are returned to service.

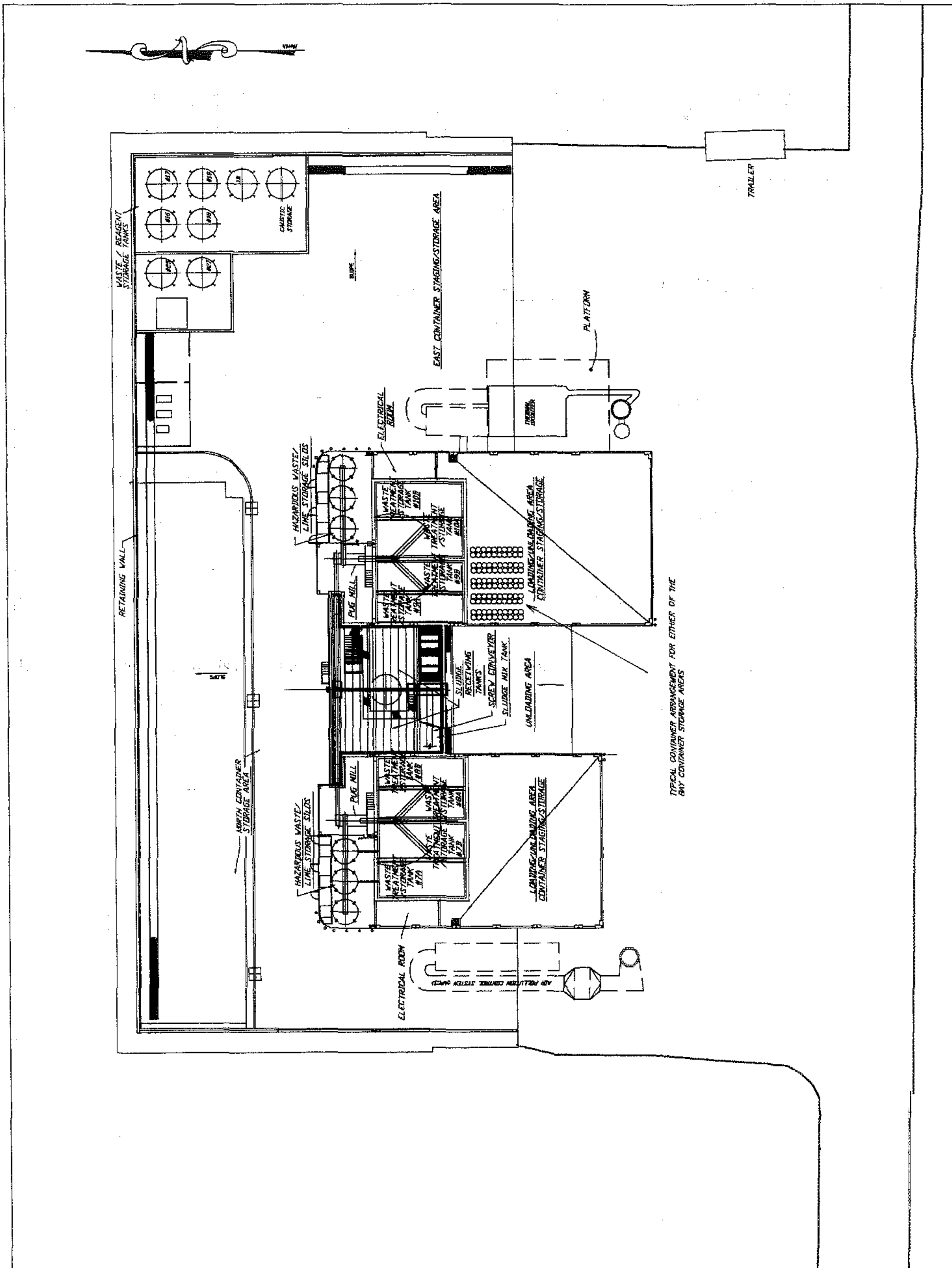
If it is observed by the operator that a container is not RCRA empty, the residues are removed by scraping, pouring, decanting, etc., as required and transferred to the designated receiving tank.

5. CONTAINERIZED WASTE BULKING/CONSOLIDATION

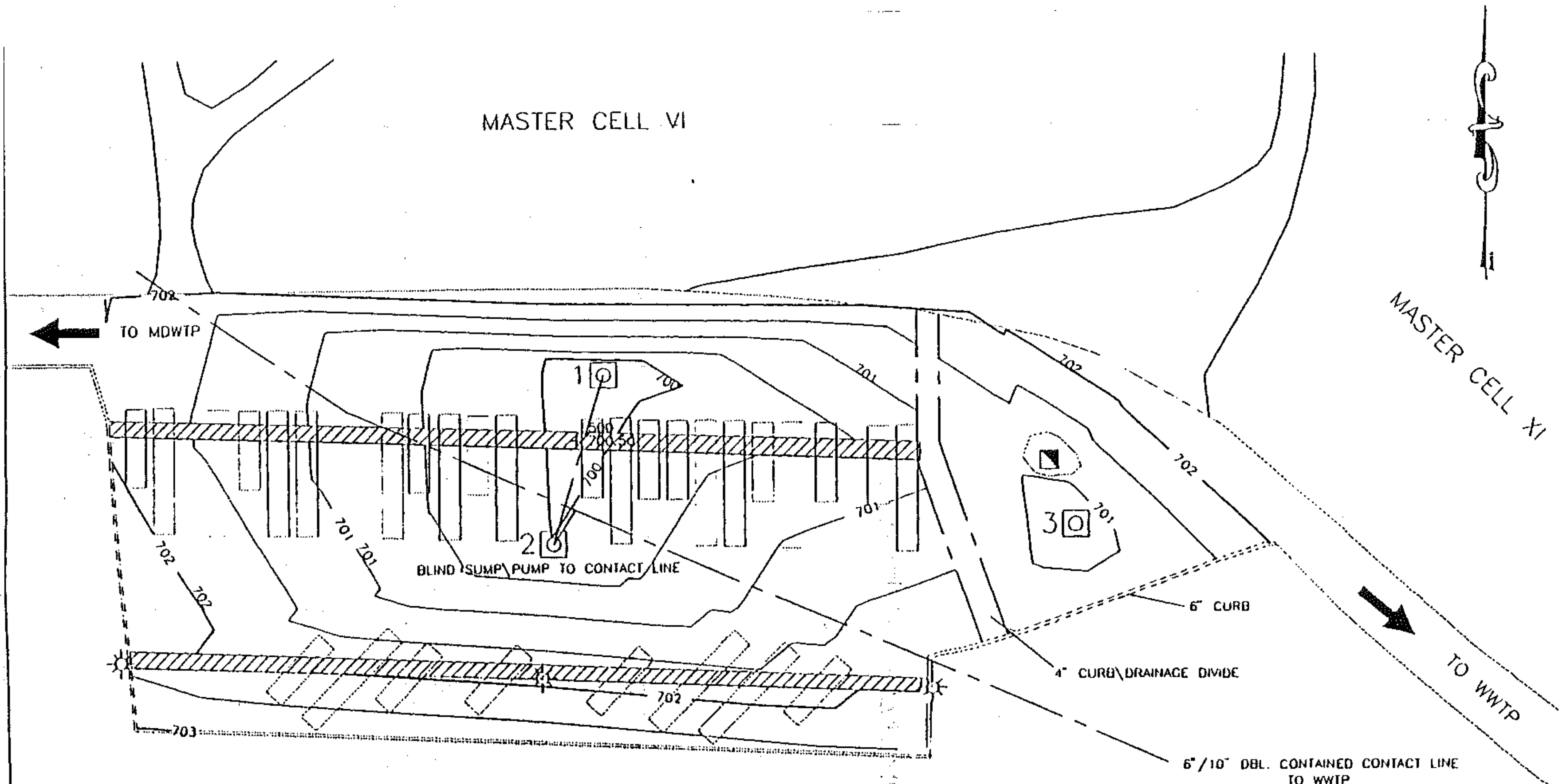
Containerized wastes that are bulked and consolidated in vertical tanks or roll-off boxes are subjected to the same compatibility and waste code evaluations as applied to wastes that are mixed in the treatment tanks as defined in the WAP.



THE ENVIRONMENTAL QUALITY COMPANY	LOCATION: MICHIGAN DISPOSAL	TITLE: SITE PLAN
	SCALE: NONE / DATE: 11/20/98	FILENAME: MDWTP2



THE ENVIRONMENTAL QUALITY COMPANY	LOCATION: EQ–BELLEVILLE	TITLE: FACILITY DRAWING
	SCALE: 1" = 50' / DATE: 05/18//99	FILENAME: MDWTP1



CATCH BASINS 1 & 2 DRAIN TO A BLIND SUMP.
CATCH BASIN 3 IS NOT WITHIN THE SE CONTAINER STORAGE AREA. IT DRAINS TO THE LINED POND AT WWTP.

DUMP TRAILERS ARE TYPICALLY 28' LONG.
VAN TRAILERS ARE TYPICALLY 48' LONG.

CATCH BASIN
LIGHTING
APPROXIMATE SPILL KIT LOCATION
CONCRETE SET WITHIN ASPHALT BASE.
(ASPHALT BASE TO BE UPGRADED WITH IMPERVIOUS BASE)

MDWTP	PROJ. FILE: J*	FILENAME: SESTORG1
S.E. STORAGE AREA	DATE: 2/29/96 SHEET 1 OF 1	SCALE: 1"=40' DRN BY: JCD

THE ENVIRONMENTAL QUALITY COMPANY

1

ATTACHMENT 8

ACCEPTABLE WASTE TYPES

APPENDIX A

WASTE TYPES ACCEPTABLE FOR TREATMENT AND STORAGE

MICHIGAN DISPOSAL WASTE TREATMENT PLANT
MID 000724831

NOTES:

The volatile organic compound (VOC) content of all hazardous wastes shall be less than (<) or equal (=) to 2.0-percent by weight.

The VOC content of non-hazardous wastes shall be < or = to 20.0-percent by weight.

The flash point of all wastes shall be greater than (>) or = to 90-degrees Fahrenheit (°F).

Includes all United States Environmental Protection Agency (USEPA) and Michigan Department of Natural Resources (MDNR) hazardous waste codes, except Dioxin-containing wastes (F020-F023, F026-F028, K043, and K099).

Reactive wastes (D003, K027, K044, K047, K161, and K045) shall be accepted only after Deactivation (i.e., treatment residues that retain the code).

Any waste codes that have a Land Disposal Restriction (LDR) technology-based treatment standard, other than Deactivation (DEACT), Chemical Reduction (CHRED), Chemical Oxidation (CHOXD), or Stabilization (STABL) cannot currently be treated by the facility, except as certified treatment residues.

P and U coded wastes may be treated at the MDWTP if they can be successfully treated by the MDWTP processes. If they cannot be successfully treated by MDWTP, the P and U coded wastes may be received for storage prior to transshipment to a properly permitted facility.

Wastes with a superscripted R have the potential to be reactive. These wastes will only be received as certified treatment residues, contaminated soil, contaminated debris, or spill residues that do not exhibit the characteristic of reactivity.

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Waste Code	Waste Description	Hazard Code	CAS No.
D001	Ignitable liquids based on 261.21(a)(1)-Wastewaters	(I)	
D001	Ignitable liquids based on 261.21(a)(1) - Low TOC Ignitable Liquids Subcategory - Less than 10% total organic carbon	(I)	
D001[R]	Ignitable compressed gases based on 261.21(a)(3)	(I)	
D001[R]	Ignitable reactives based on 261.21(a)(2)	(I)	
D001	Oxidizers based on 261.21(a)(4)	(I)	
D002	Acid Subcategory based on 261.22(a)(1)	(C)	
D002	Alkaline Subcategory based on 261.22 (a) (1)	(C)	
D002	Other corrosives based on 261.22(a)(2)	(C)	
D003[R]	Deactivated Reactive waste based upon 261.23	(R)	
D004	Arsenic	(T)	7440-38-2
D005	Barium	(T)	7440-39-3
D018	Benzene	(T)	71-43-2
D006	Cadmium	(T)	7440-43-9
D019	Carbon tetrachloride	(T)	56-23-5
D020	Chlordane	(T)	57-74-9
D021	Chlorobenzene	(T)	108-90-7
D022	Chloroform	(T)	67-66-3
D007	Chromium	(T)	7440-47-3
D023	o-Cresol	(T)	95-48-7
D024	m-Cresol	(T)	108-39-4
D025	p-Cresol	(T)	106-44-5
D026	Cresol	(T)	
D016	2,4-D	(T)	94-75-7
D027	1,4-Dichlorobenzene	(T)	106-46-7
D028	1,2-Dichloroethane	(T)	107-06-2
D029	1,1-Dichloroethylene	(T)	75-35-4
D030	2,4-Dinitrotoluene	(T)	121-14-2
D012	Endrin	(T)	72-20-8
D031	Heptachlor (and its epoxide)	(T)	76-44-8
D032	Hexachlorobenzene	(T)	118-74-1
D033	Hexachlorobutadiene	(T)	87-68-3
D034	Hexachloroethane	(T)	67-72-1
D008	Lead	(T)	7439-92-1
D013	Lindane	(T)	58-89-9
D009	Mercury	(T)	7439-97-6
D014	Methoxychlor	(T)	72-43-5
D035	Methyl ethyl ketone	(T)	78-93-3
D036	Nitrobenzene	(T)	98-95-3
D037	Pentrachlorophenol	(T)	87-86-5
D038	Pyridine	(T)	110-86-1
D010	Selenium	(T)	7782-49-2
D011	Silver	(T)	7440-22-4
D039	Tetrachloroethylene	(T)	127-18-4
D015	Toxaphene	(T)	8001-35-2
D040	Trichloroethylene	(T)	79-01-6
D041	2,4,5-Trichlorophenol	(T)	95-95-4
D042	2,4,6-Trichlorophenol	(T)	88-06-2
D017	2,4,5-TP (Silvex)	(T)	93-72-1

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Michigan Disposal Waste Treatment Plant
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Waste Code	Waste Description	Hazard Code	CAS No.
D043	Vinyl chloride	(T)	75-01-4
F001	The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing; containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(T)	
F002	The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(T)	
F003	The following spent non-halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(I)*	
F004	The following spent non-halogenated solvents: Cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(T)	
F005	The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(I,T)	
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and plating on carbon steel; and (6) chemical etching and milling of aluminum	(T)	
F007	Spent cyanide plating bath solutions from electroplating operations	(R,T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
F008	Flating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process	(R,T)	
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process	(R,T)	
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process	(R,T)	
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations	(R,T)	
F012	Quenching waste water treatment sludges from metal heat treating operations where cyanides are used in the process	(T)	
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process	(T)	
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor clean-out wastes from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes; these chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. [This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in Section 261.31 or Section 261.32]	(T)	
F025	Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes; these chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution	(T)	
F032	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with □ wastes that are otherwise currently regulated as hazardous wastes (i e , F034 or F035), and where the generator does not resume or initiate use of chlorophenolic formulations) This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	(T)	
F034	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations; this listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	(T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
F035	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium; this listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	(T)	
F037	Petroleum refinery primary oil/water/solids separation sludge-Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in □ sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing	(T)	
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge-Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries; such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment fromother process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in □ sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing	(T)	
F039	Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under subpart D of this part (Leachate resulting from the disposal of one or more of the following EPA Hazardous Wastes and no other Hazardous Wastes retains its EPA Hazardous Waste Number(s): F020, F021, F022, F026, F027, and/or F028)	(T)	
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol	(T)	
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments	(T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
K003	Wastewater treatment sludge from the production of molybdate orange pigments		
K004	Wastewater treatment sludge from the production of zinc yellow pigments	(T)	
K005	Wastewater treatment sludge from the production of chrome green pigments	(T)	
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated)	(T)	
K007	Wastewater treatment sludge from the production of iron blue pigments	(T)	
K008	Oven residue from the production of chrome oxide green pigments	(T)	
K009	Distillation bottoms from the production of acetaldehyde from ethylene	(T)	
K010	Distillation side cuts from the production of acetaldehyde from ethylene	(T)	
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile	(R,T)	
K013	Bottom stream from the acetonitrile column in	(R,T)	
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile	(T)	
K015	Still bottoms from the distillation of benzylchloride	(T)	
K016	Heavy ends or distillation residues from the production of carbon tetrachloride	(T)	
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin	(T)	
K018	Heavy ends from the fractionation column in ethyl chloride production	(T)	
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production	(T)	
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production	(T)	
K021	Aqueous spent antimony catalyst waste from fluoromethanes production	(T)	
K022	Distillation bottom tars from the production of phenol/acetone from cumene	(T)	
K023	Distillation light ends from the production of phthalic anhydride from naphthalene	(T)	
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene	(T)	
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene	(T)	
K026	Stripping still tails from the production of methy ethyl pyridines	(T)	
K027[R]	Deactivated centrifuge and distillation residues from toluene dilsocyanate production	(R, T)	
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane	(T)	
K029	Waste from the product steam stripper in the production of 1,1,1-trichloroethane	(T)	
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and per-chloroethylene	(T)	
K031	MSMA and cacodylic acid	(T)	
K032	Wastewater treatment sludge from the production of chlordane	(T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane	(T)	
K034	Filter solids from the filtration of hexachloro-cyclopentadiene in the production of chlordane	(T)	
K035	Wastewater treatment sludges generated in theproduction of creosote	(T)	
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton	(T)	
K037	Wastewater treatment sludges from the production of disulfoton	(T)	
K038	Wastewater from the washing and stripping of phorate production	(T)	
K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate	(T)	
K040	Wastewater treatment sludge from the production of phorate	(T)	
K041	Wastewater treatment sludge from the production of toxaphene	(T)	
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in theproduction of 2,4,5-T	(T)	
K044[R]	Deactivated wastewater treatment sludges from the manufacturing and processing of explosives	(R)	
K045[R]	Deactivated spent carbon from the treatment of wastewater containing explosives	(R)	
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds	(T)	
K047[R]	Deactivated pink/red water from TNT operations	(R)	
K048	Dissolved air flotation (DAF) float from the petroleum refining industry	(T)	
K049	Slop oil emulsion solids from the petroleum refining industry	(T)	
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry	(T)	
K051	API separator sludge from the petroleum refining industry	(T)	
K052	Tank bottoms (leaded) from the petroleum refining in dustry	(T)	
K060	Ammonia still lime sludge from coking operations	(T)	
K061	Emission control dust/sludge from the primary production of steel in electric furnaces	(T)	
K062	Spent pickle liquor generated by steel finishing operations of factilities within the iron and steel industry (SIC Codes 331 and 332)	(C,T)	
K064	Acid plant blowdown slurry/sludge resulting from (T)the thickening of blowdown slurry from primary copper production		
K065	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities	(T)	
K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production	(T)	
K069	Emission control dust/sludge from secondary lead smelting. (Note: This listing is stayed administratively for sludge generated from secondary acid scrubber systems. The stay will remain in effect until further administrative action is taken. If EPA takes further action effecting this stay, EPA will publish a notice of the action in the Federal Register	(T)	
K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used	(T)	
K073	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production	(T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
K083	Distillation bottoms from aniline production	(T)	
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)	
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes	(T)	
K086	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers,soaps, and stabilizers containing chromium and lead	(T)	
K087	Decanter tank tar sludge from coking operations	(T)	
K088	Spent potliners from primary aluminum reduction	(T)	
K090	Emission control dust or sludge from ferrochromiumsilicon production	(T)	
K091	Emission control dust or sludge from ferrochromium production	(T)	
K093	Distillation light ends from the production ofphthalic anhydride from ortho-xylene	(T)	
K094	Distillation bottoms from the production ofphthalic anhydride from ortho-xylene	(T)	
K095	Distillation bottoms from the production of1,1,1-trichloroethane	(T)	
K096	Heavy ends from the heavy ends column from theproduction of 1,1,1-trichloroethane	(T)	
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane	(T)	
K098	Untreated process wastewater from the production of toxaphene	(T)	
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting	(T)	
K101	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)	
K102	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	(T)	
K103	Process residues from aniline extraction from the production of aniline	(T)	
K104	Combined wastewater streams generated from ni-trobenzene/aniline production	(T)	
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes	(T)	
K106	Wastewater treatment sludge from the mercury cell process in chlorine production	(T)	
K107	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides		
K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides		
K109	Spent filter cartridges from product purification from the production of 1,1 dimethylhydrazine (UDMH) from carboxylic acid hydrazides		
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides		

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Waste Code	Waste Description	Hazard Code	CAS No.
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene	(C,T)	
K112	Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene		
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluendiamine via hydrogention of dinitrotoluene		
K114	Vicinals from the purification of toluenediamine in the production of toluendiamine via hydrogention of dinitrotoluene		
K115	Heavy ends from the purification of toluenediamine in the production of toluendiamine via hydrogention of dinitrotoluene		
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediaminepurification of toluenediamine via hydrogention of dinitrotoluene		
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide viabromination of ethene	(T)	
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene	(T)	
K123	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salt		
K124	Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts		
K125	Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts		
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts		
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide	(C,T)	
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide	(T)	
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene	(T)	
K141	Process residues from the recovery of coal tar, including, but not limited to, collecting sump residues from the production of coke from coal or the recovery of coke by-products produced from coal This listing does not include K087 (decanter tank tar sludges from coking operations)	(T)	
K142	Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products from coal	(T)	
K143	Process residues from the recovery of light oil,including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal	(T)	
K144	Wastewater sump residues from light oil refining, including, but not limited to,intercepting or contamination sump sludges from the recovery of coke by-products produced from coal	(T)	
K145	Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal	(T)	
K147	Tar storage tank residues from coal tar refining	(T)	

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Waste Code	Waste Description	Hazard Code	CAS No.
K148	Residues from coal tar distillation, including but not limited to, still bottoms	(T)	
K149	Distillation bottoms from the production of alpha-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups, (This waste does not include still bottoms from the distillation of benzyl chloride)	(T)	
K150	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups	(T)	
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups	(T)	
K156	Organic wastes (including heavy ends, still bottoms, light ends, spent solvents, filtrates and decantes) from the production of carbamates and carbamoyl oximes.	(T)	
K157	Wastewaters (including scrubber waters, condenser waters, washwaters and separation waters) from the production of carbamates and carbamoyl oximes.	(T)	
K158	Bag house dusts and filter/separation solids from the production of carbamates and carbamoyl oximes.	(T)	
K159	Organics from treatment of thiocarbamate wastes	(T)	
K160	Solids (including filter wastes, separation solids and spent catalysts) from the production of thiocarbamates and solids from the treatment of thiocarbamate wastes.	(T)	
K161	Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts.(This listing does not include K125 or K126.). including antimony and arsenic	(R,T)	
P023	Acetaldehyde, chloro-		107-20-0
P002	Acetamide, N-(aminothioxomethyl)-		591-08-2
P057	Acetamide, 2-fluoro-		640-19-7
P058	Acetic acid, fluoro-, sodium salt		62-74-8
P002	1-Acetyl-2-thiourea		591-08-2
P003	Acrolein		107-02-8
P070	Aldicarb		116-06-3
P203	Aldicarb sulfone.		1646-88-4
P004	Aldrin		309-00-2
P005	Allyl alcohol		107-18-6
P006	Aluminum phosphide (R,T)		20859-73-8
P007	5-(Aminomethyl)-3-isoxazolol		2763-96-4
P008	4-Aminopyridine		504-24-5
P009	Ammonium picrate (R)		131-74-8
P119	Ammonium vanadate		7803-55-6

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Waste Code	Waste Description	Hazard Code	CAS No.
P099	Argentate(1-), bis(cyano-C)-, potassium		506-61-6
P010	Arsenic acid H3AsO4		7778-39-4
P012	Arsenic oxide As2O3		1327-53-3
P011	Arsenic oxide As2O5		1303-28-2
P011	Arsenic pentoxide		1303-28-2
P012	Arsenic trioxide		1327-53-3
P038	Arsine, diethyl-		692-42-2
P036	Arsonous dichloride, phenyl-		696-28-6
P054	Aziridine		151-56-4
P067	Aziridine, 2-methyl-		75-55-8
P013	Barium cyanide		542-62-1
P024	Benzenamine, 4-chloro-		106-47-8
P077	Benzenamine, 4-nitro-		100-01-6
P028	Benzene, (chloromethyl)-		100-44-7
P042	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-		51-43-4
P046	Benzeneethanamine, alpha,alpha-dimethyl-		122-09-8
P014	Benzenethiol		108-98-5
P127	7-Benzofuranol, 2,3-dihydro-2,2-dimethylmethylcarbamate.		1563-66-2
P188	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol -5-yl methylcarbamate ester (1:1).		57-64-7
P001	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1 - phenylbutyl)-, & salts, when present at concentrations greater than 0.3%		181-81-2
P028	Benzyl chloride		100-44-7
P015	Beryllium powder		7440-41-7
P017	Bromoacetone		598-31-2
P018	Brucine		357-57-3
P045	2-Butanone, 3,3-dimethyl-1-(methylthio)-, ...O-[methylamino)carbonyl] oxime		39196-18-4
P021	Calcium cyanide		592-01-8
P021	Calcium cyanide Ca(CN)2		592-01-8
P189	Carbamic acid, [(dibutylamino)-thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester.		55285-14-8
P191	Carbamic acid, dimethyl-, 1-[(dimethyl-amino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester.		644-64-4
P192	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester.		119-38-0
P190	Carbamic acid, methyl-, 3-methylphenyl ester.		1129-41-5
P127	Carbofuran.		1563-66-2
P022	Carbon disulfide		75-15-0
P095	Carbonic dichloride		75-44-5
P189	Carbosulfan.		55285-14-8
P023	Chloroacetaldehyde		107-20-0
P024	p-Chloroaniline		106-47-8
P026	1-(o-Chlorophenyl)thiourea		5344-82-1
P027	3-Chloropropionitrile		542-76-7
P029	Copper cyanide		544-92-3
P029	Copper cyanide Cu(CN)		544-92-3
P202	m-Cumenyl methylcarbamate.		64-00-6
P030	Cyanides (soluble cyanide salts), not otherwise specified		....

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Waste Code	Waste Description	Hazard Code	CAS No.
P031	Cyanogen		460-19-5
P033	Cyanogen chloride		506-77-4
P033	Cyanogen chloride (CN)Cl		506-77-4
P034	2-Cyclohexyl-4,6-dinitrophenol		131-89-5
P016	Dichloromethyl ether		542-88-1
P036	Dichlorophenylarsine		696-28-6
P037	Dieldrin		60-57-1
P038	Diethylarsine		692-42-2
P041	Diethyl-p-nitrophenyl phosphate		311-45-5
P040	O,O-Diethyl O-pyrazinyl phosphorothioate		297-97-2
P043	Diisopropylfluorophosphate (DFP)		55-91-4
P004	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-		309-00-2
P060	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-		465-73-6
P037	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-		60-57-1
P051	2,7:3,6-Dimethanonaphth [2,3-b]oxirene,3,4,5,6,9,9-hexa-chloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-, & metabolites		172-20-8
P044	Dimethoate		60-51-5
P191	Dimetilan.		644-64-4
P046	alpha,alpha-Dimethylphenethylamine		122-09-8
P047	4,6-Dinitro-o-cresol, & salts 1		1534-52-
P048	2,4-Dinitrophenol		51-28-5
P020	Dinoseb		88-85-7
P085	Diphosphoramide, octamethyl-		152-16-9
P111	Diphosphoric acid, tetraethyl ester		107-49-3
P039	Disulfoton		298-04-4
P049	Dithiobiuret		541-53-7
P185	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-,O- [(methylamino)-carbonyl]oxime.		26419-73-8
P050	Endosulfan		115-29-7
P088	Endothall		145-73-3
P051	Endrin		72-20-8
P051	Endrin, & metabolites		72-20-8
P042	Epinephrine		51-43-4
P031	Ethanedinitrile		460-19-5
P194	Ethanimidothioc acid, 2-(dimethylamino)-N-[[(methylamino)carbonyl]oxy]-2-oxo-, methyl ester.		23135-22-0
P066	Ethanimidothioic acid,...N-[[(methylamino)carbonyl]oxy]-, methyl ester		16752-77-5
P101	Ethyl cyanide		107-12-0
P054	Ethyleneimine		151-56-4
P097	Famphur		52-85-7
P056	Fluorine		7782-41-4
P057	Fluoroacetamide		640-19-7
P058	Fluoroacetic acid, sodium salt		62-74-8

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Waste Code	Waste Description	Hazard Code	CAS No.
P198	Formetanate hydrochloride.		23422-53-9
P197	Formparanate.		17702-57-7
P065	Fulminic acid, mercury(2+) salt (R,T)		628-86-4
P059	Heptachlor		76-44-8
P062	Hexaethyl tetraphosphate		757-58-4
P116	Hydrazinecarbothioamide		79-19-6
P068	Hydrazine, methyl-		60-34-4
P063	Hydrocyanic acid		74-90-8
P063	Hydrogen cyanide		74-90-8
P096	Hydrogen phosphide		7803-51-2
P060	Isodrin		465-73-6
P192	Isolan.		119-38-0
P202	3-Isopropylphenyl N-methylcarbamate.		64-00-6
P007	3(2H)-Isoxazolone, 5-(aminomethyl)-		2763-96-4
P196	Manganese, bis(dimethylcarbamodithioato-S,S')-,		15339-36-3
P196	Manganese dimethyldithiocarbamate.		15339-36-3
P092	Mercury, (acetato-O)phenyl-		62-38-4
P065	Mercury fulminate (R,T)		628-86-4
P082	Methanamine, N-methyl-N-nitroso-		62-75-9
P064	Methane, isocyanato-		624-83-9
P016	Methane, oxybis[chloro-		542-88-1
P112	Methane, tetranitro-(R)		509-14-8
P118	Methanethiol, trichloro-		75-70-7
P198	Methanimidamide, N,N-dimethyl-N'-[3-[[(methylamino)-carbonyl]oxy] phenyl]-, monohydrochloride.		23422-53-9
P197	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[[(methyl-amino)carbonyl]o xy]phenyl]-		17702-57-7
P050	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide		115-29-7
P059	4,7-Methano-1H-indene,1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-		76-44-8
P199	Methiocarb.		2032-65-7
P066	Methomyl		16752-77-5
P068	Methyl hydrazine		60-34-4
P064	Methyl isocyanate		624-83-9
P069	2-Methyllactonitrile		75-86-5
P071	Methyl parathion		298-00-0
P190	Metolcarb.		1129-41-5
P128	Mexacarbamate		315-18-4
P072	alpha-Naphthylthiourea		86-88-4
P073	Nickel carbonyl		13463-39-3
P073	Nickel carbonyl Ni(CO)4, (T-4)-		13463-39-3
P074	Nickel cyanide		557-19-7
P074	Nickel cynaide Ni(CN)2		557-19-7
P075	Nicotine, & salts		154-11-5
P076	Nitric oxide		10102-43-9
P077	p-Nitroaniline		100-01-6
P078	Nitrogen dioxide		10102-44-0
P076	Nitrogen oxide NO		10102-43-9
P078	Nitrogen oxide NO2		10102-44-0

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Waste Code	Waste Description	Hazard Code	CAS No.
P081	Nitroglycerine (R)		55-63-0
P082	N-Nitrosodimethylamine		62-75-9
P084	N-Nitrosomethylvinylamine		4549-40-0
P085	Octamethylpyrophosphoramide		152-16-9
P087	Osmium oxide OsO4, (T-4)-		20816-12-0
P087	Osmium tetroxide		20816-12-0
P088	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid		145-73-3
P194	Oxamyl.		23135-22-0
P089	Parathion		56-38-2
P034	Phenol, 2-cyclohexyl-4,6-dinitro-		131-89-5
P048	Phenol, 2,4-dinitro-		51-28-5
P047	Phenol, 2-methyl-4,6-dinitro-, & salts, 1		1534-52-
P020	Phenol, 2-(1-methylpropyl)-4,6-dinitro-		88-85-7
P009	Phenol, 2,4,6-trinitro-, ammonium salt (R)		131-74-8
P128	Phenol, 4-(dimethylamino)-3,5-dimethyl-,methylcarbamate(ester).		315-18-4
P199	Phenol, (3,5-dimethyl-4-(methylthio)-,methylcarbamate		2032-65-7
P202	Phenol, 3-(1-methylethyl)-, methyl carbamate.		64-00-6
P201	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate.		2631-37-0
P092	Phenylmercury acetate		62-38-4
P093	Phenylthiourea		103-85-5
P094	Phorate		298-02-2
P095	Phosgene		75-44-5
P096	Phosphine		7803-51-2
P041	Phosphoric acid, diethyl 4-nitrophenyl ester		311-45-5
P039	Phosphorodithioic acid, O,O-diethyl.S-[2-(ethylthio)ethyl] ester		298-04-4
P094	Phosphorodithioic acid, O,O-diethyl.S-[(ethylthio)methyl] ester		298-02-2
P044	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester		60-51-5
P043	Phosphorofluoridic acid, bis(1-methylethyl) ester		55-91-4
P089	Phosphorothioic acid, O,O-diethyl, O-(4-nitrophenyl) ester		56-38-2
P040	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester		297-97-2
P097	Phosphorothioic acid,...O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester		52-85-7
P071	Phosphorothioic acid, O,O,-dimethyl O-(4-nitrophenyl) ester		298-00-0
P204	Physostigmine.		57-47-6
P188	Physostigmine salicylate.		57-64-7
P110	Plumbane, tetraethyl-		78-00-2
P204	Physostigmine.		57-47-6
P188	Physostigmine salicylate.		57-64-7
P098	Potassium cyanide		151-50-8
P098	Potassium cyanide K(CN)		151-50-8
P099	Potassium silver cyanide		506-61-6
P201	Promecarb		2631-37-0
P203	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-[(methylamino)carbonyl] oxime.		1646-88-4
P070	Propanal, 2-methyl-2-(methylthio)-,...O-[(methylamino)carbonyl]oxime		116-06-3
P101	Propanenitrile		107-12-0
P027	Propanenitrile, 3-chloro-		542-76-7
P069	Propanenitrile, 2-hydroxy-2-methyl-		75-86-5

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P081	1,2,3-Propanetriol, trinitrate (R)		55-63-0
P017	2-Propanone, 1-bromo-		598-31-2
P102	Propargyl alcohol		107-19-7
P003	2-Propenal		107-02-8
P005	2-Propen-1-ol		107-18-6
P067	1,2-Propylenimine		75-55-8
P102	2-Propyn-1-ol		107-19-7
P008	4-Pyridinamine		504-24-5
P075	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts		154-11-5
P204	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-,methylcarbamate (ester), (3aS-cis)-.		57-47-6
P114	Selenious acid, dithallium(1+) salt		12039-52-0
P103	Selenourea		630-10-4
P104	Silver cyanide		506-64-9
P104	Silver cyanide Ag(CN)		506-64-9
P105	Sodium azide		26628-22-8
P106	Sodium cyanide		143-33-9
P106	Sodium cyanide Na(CN)		143-33-9
P108	Strychnidin-10-one, & salts		157-24-9
P018	Strychnidin-10-one, 2,3-dimethoxy-		357-57-3
P108	Strychnine, & salts		157-24-9
P115	Sulfuric acid, dithallium(1+) salt		7446-18-6
P109	Tetraethyldithiopyrophosphate		3689-24-5
P110	Tetraethyl lead		78-00-2
P111	Tetraethyl pyrophosphate		107-49-3
P112	Tetranitromethane (R)		509-14-8
P062	Tetraphosphoric acid, hexaethyl ester		757-58-4
P113	Thallic oxide		1314-32-5
P113	Thallium oxide Tl2O3		1314-32-5
P114	Thallium(I) selenite		12039-52-0
P115	Thallium(I) sulfate		7446-18-6
P109	Thiodiphosphoric acid, tetraethyl ester		3689-24-5
P045	Thiofanox		39196-18-4
P049	Thioimidodicarbonic diamide [(H2N)C(S)]2NH		541-53-7
P014	Thiophenol		108-98-5
P116	Thiosemicarbazide		79-19-6
P026	Thiourea, (2-chlorophenyl)-		5344-82-1
P072	Thiourea, 1-naphthalenyl-		86-88-4
P093	Thiourea, phenyl-		103-85-5
P185	Tirpate.		26419-73-8
P123	Toxaphene		8001-35-2
P118	Trichloromethanethiol		75-70-7
P119	Vanadic acid, ammonium salt		7803-55-6
P120	Vanadium oxide V2O5		1314-62-1
P120	Vanadium pentoxide		1314-62-1
P084	Vinylamine, N-methyl-N-nitroso-		4549-40-0
P001	Warfarin, & salts, when present at concentrations greater than 0.3%		181-81-2
P205	Zinc, bis(dimethylcarbamodithioato-S,S')-,		137-30-4
P121	Zinc cyanide		557-21-1

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Waste Code	Waste Description	Hazard Code	CAS No.
P121	Zinc cyanide Zn(CN)2		557-21-1
P122	Zinc phosphide Zn3P2, when present at concentrations greater than 10% (R,T)		1314-84-7
P205	Ziram.		137-30-4
U394	A2213.		30558-43-1
U001	Acetaldehyde (I)		75-07-0
U034	Acetaldehyde, trichloro-		75-87-6
U187	Acetamide, N-(4-ethoxyphenyl)-		62-44-2
U005	Acetamide, N-9H-fluoren-2-yl-		53-96-3
U240	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters		194-75-7
U112	Acetic acid ethyl ester (I)		141-78-6
U144	Acetic acid, lead(2+) salt		301-04-2
U214	Acetic acid, thallium(1+) salt		563-68-8
U002	Acetone (I)		67-64-1
U003	Acetonitrile (I,T)		75-05-8
U004	Acetophenone		98-86-2
U005	2-Acetylaminofluorene		53-96-3
U006	Acetyl chloride (C,R,T)		75-36-5
U007	Acrylamide		79-06-1
U008	Acrylic acid (I)		79-10-7
U009	Acrylonitrile		107-13-1
U011	Amitrole		61-82-5
U012	Aniline (I,T)		62-53-3
U136	Arsinic acid, dimethyl-		75-60-5
U014	Auramine		492-80-8
U015	Azaserine		115-02-6
U365	H-Azepine-1-carbothioic acid, hexahydro-, S-ethyl ester.		2212-67-1
U010	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-		50-07-7
U280	Barban.		101-27-9
U278	Bendiocarb.		22781-23-3
U364	Bendiocarb phenol.		22961-82-6
U271	Benomyl.		17804-35-2
U157	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-		56-49-5
U016	Benz[c]acridine		225-51-4
U017	Benzal chloride		98-87-3
U192	Benzamide,3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-		23950-58-5
U018	Benz[a]anthracene		56-55-3
U094	Benz[a]anthracene, 7,12-dimethyl-		57-97-6
U012	Benzenamine (I,T)		62-53-3
U014	Benzenamine, 4,4'-carbonimidoylbis [N,N-dimethyl-		492-80-8
U049	Benzenamine, 4-chloro-2-methyl-, hydrochloride		3165-93-3
U093	Benzenamine, N,N-dimethyl-4-(phenylazo)-		60-11-7
U328	Benzenamine, 2-methyl-		95-53-4
U353	Benzenamine, 4-methyl-		106-49-0
U158	Benzenamine, 4,4'-methylenebis[2-chloro-		101-14-4
U222	Benzenamine, 2-methyl-, hydrochloride		636-21-5
U181	Benzenamine, 2-methyl-5-nitro-		99-55-8

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U019	Benzene (I,T)		71-43-2
U038	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester		510-15-6
U030	Benzene, 1-bromo-4-phenoxy-		101-55-3
U035	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-		305-03-3
U037	Benzene, chloro-		108-90-7
U221	Benzenediamine, ar-methyl-		25376-45-8
U028	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester		117-81-7
U069	1,2-Benzenedicarboxylic acid, dibutyl ester		84-74-2
U088	1,2-Benzenedicarboxylic acid, diethyl ester		84-66-2
U102	1,2-Benzenedicarboxylic acid, dimethyl ester		131-11-3
U107	1,2-Benzenedicarboxylic acid, dioctyl ester		117-84-0
U070	Benzene, 1,2-dichloro-		95-50-1
U071	Benzene, 1,3-dichloro-		541-73-1
U072	Benzene, 1,4-dichloro-		106-46-7
U060	Benzene, 1,1'-(2,2-dichloroethylidene)bis [4-chloro-		72-54-8
U017	Benzene, (dichloromethyl)-		98-87-3
U223	Benzene, 1,3-diisocyanatomethyl-(R,T)		26471-62-5
U239	Benzene, dimethyl-(I,T)		1330-20-7
U201	1,3-Benzenediol		108-46-3
U127	Benzene, hexachloro-		118-74-1
U056	Benzene, hexahydro-(I)		110-82-7
U220	Benzene, methyl-		108-88-3
U105	Benzene, 1-methyl-2,4-dinitro-		121-14-2
U106	Benzene, 2-methyl-1,3-dinitro-		606-20-2
U055	Benzene, (1-methylethyl)-(I)		98-82-8
U169	Benzene, nitro-		98-95-3
U183	Benzene, pentachloro-		608-93-5
U185	Benzene, pentachloronitro-		82-68-8
U020	Benzenesulfonic acid chloride (C,R)		98-09-9
U020	Benzenesulfonyl chloride (C,R)		98-09-9
U207	Benzene, 1,2,4,5-tetrachloro-		95-94-3
U061	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-chloro-		50-29-3
U247	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-methoxy-		72-43-5
U023	Benzene, (trichloromethyl)-		98-07-7
U234	Benzene, 1,3,5-trinitro-		99-35-4
U021	Benzidine		92-87-5
U202	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts		181-07-2
U364	1,3-Benzodioxol-4-ol, 2,2-dimethyl-,		22961-82-6
U278	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate.		22781-23-3
U203	1,3-Benzodioxole, 5-(2-propenyl)-		94-59-7
U141	1,3-Benzodioxole, 5-(1-propenyl)-		120-58-1
U090	1,3-Benzodioxole, 5-propyl-		94-58-6
U367	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-		1563-38-8
U064	Benzo[rst]pentaphene		189-55-9
U248	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations of 0.3% or less		181-81-2
U022	Benzo[a]pyrene		50-32-8
U197	p-Benzoquinone		106-51-4

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U023	Benzotrichloride (C,R,T)		98-07-7
U085	2,2'-Bioxirane		1464-53-5
U021	[1,1'-Biphenyl]-4,4'-diamine		92-87-5
U073	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-		91-94-1
U091	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-		119-90-4
U095	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-		119-93-7
U401	Bis(dimethylthiocarbamoyl) sulfide.		97-74-5
U400	Bis(pentamethylene)thiuram tetrasulfide.		120-54-7
U225	Bromoform		75-25-2
U030	4-Bromophenyl phenyl ether		101-55-3
U128	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-		87-68-3
U172	1-Butanamine, N-butyl-N-nitroso-		924-16-3
U031	1-Butanol (I)		71-36-3
U159	2-Butanone (I,T)		78-93-3
U160	2-Butanone, peroxide (R,T)		1338-23-4
U053	2-Butenal		4170-30-3
U074	2-Butene, 1,4-dichloro-(I,T)		764-41-0
U143	2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-t etrahydro-1H-pyrrolizin-1-ylester,...[1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-		303-34-4
U031	n-Butyl alcohol (I)		71-36-3
U392	Butylate.		2008-41-5
U136	Cacodylic acid		75-60-5
U032	Calcium chromate		13765-19-0
U372	Carbamic acid, 1H-benzimidazol-2-yl, methylester.		10605-21-7
U271	Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl]-, methyl ester.		17804-35-2
U375	Carbamic acid, butyl-, 3-iodo-2-propynyl ester.		55406-53-6
U280	Carbamic acid, (3-chlorophenyl)-,4-chloro-2-butynyl ester.		101-27-9
U238	Carbamic acid, ethyl ester		51-79-6
U178	Carbamic acid, methylnitroso-, ethyl ester		615-53-2
U373	Carbamic acid, phenyl-, 1-methylethyl ester.		122-42-9
U409	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester.		23564-05-8
U097	Carbamic chloride, dimethyl-		79-44-7
U379	Carbamodithioic acid, dibutyl, sodium salt.		136-30-1
U277	Carbamodithioic acid, diethyl-,2-chloro-2-propenyl ester.		95-06-7
U381	Carbamodithioic acid, diethyl-, sodium salt.		148-18-5
U383	Carbamodithioic acid, dimethyl, potassium salt.		128-03-0
U382	Carbamodithioic acid, dimethyl-, sodium salt.		128-04-1
U376	Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthothioselenious acid.		144-34-3
U114	Carbamodithioic acid, 1,2-ethanediylbis-,...salts & esters		1111-54-6
U378	Carbamodithioic acid, (hydroxymethyl)methyl-, monopotassium salt.		51026-28-9
U377	Carbamodithioic acid, methyl,-monopotassium salt.		137-41-7
U384	Carbamodithioic acid, methyl-, monosodium salt.		137-42-8
U062	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester		2303-16-4

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Waste Code	Waste Description	Hazard Code	CAS No.
U389	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester.		2303-17-5
U392	Carbamothioic acid, bis(2-methylpropyl)-, S-ethyl ester.		2008-41-5
U391	Carbamothioic acid, butylethyl-, S-propyl ester.		1114-71-2
U386	Carbamothioic acid, cyclohexylethyl-, S-ethyl ester.		1134-23-2
U390	Carbamothioic acid, dipropyl-, S-ethyl ester.		759-94-4
U387	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester.		52888-80-9
U385	Carbamothioic acid, dipropyl-, S-propyl ester.		1929-77-7
U279	Carbaryl.		63-25-2
U372	Carbendazim.		10605-21-7
U367	Carbofuran phenol.		1563-38-8
U215	Carbonic acid, dithallium(1+) salt		6533-73-9
U033	Carbonic difluoride		353-50-4
U156	Carbonochloridic acid, methyl ester (I,T)		79-22-1
U033	Carbon oxyfluoride (R,T)		353-50-4
U211	Carbon tetrachloride		56-23-5
U034	Chloral		75-87-6
U035	Chlorambucil		305-03-3
U036	Chlordane, alpha & gamma isomers		57-74-9
U026	Chlornaphazin		494-03-1
U037	Chlorobenzene		108-90-7
U038	Chlorobenzilate		510-15-6
U039	p-Chloro-m-cresol		59-50-7
U042	2-Chloroethyl vinyl ether		110-75-8
U044	Chloroform		67-66-3
U046	Chloromethyl methyl ether		107-30-2
U047	beta-Chloronaphthalene		91-58-7
U048	o-Chlorophenol		95-57-8
U049	4-Chloro-o-toluidine, hydrochloride		3165-93-3
U393	Copper, bis(dimethylcarbamodithioato-S,S')-,		137-29-1
U393	Copper dimethyldithiocarbamate.		137-29-1
U032	Chromic acid H2CrO4, calcium salt		13765-19-0
U050	Chrysene		218-01-9
U051	Creosote		....
U052	Cresol (Cresylic acid)		1319-77-3
U053	Crotonaldehyde		4170-30-3
U055	Cumene (I)		98-82-8
U246	Cyanogen bromide (CN)Br		506-68-3
U386	Cycloate.		1134-23-2
U386	Cycloate.		1134-23-2
U197	2,5-Cyclohexadiene-1,4-dione		106-51-4
U056	Cyclohexane (I)		110-82-7
U129	Cyclohexane, 1,2,3,4,5,6-hexachloro- ,.(1alpha,2alpha,3beta,4alpha,5alpha,6beta)-		58-89-9
U057	Cyclohexanone (I)		108-94-1
U130	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-		77-47-4
U058	Cyclophosphamide		50-18-0
U240	2,4-D, salts & esters		194-75-7
U059	Daunomycin		20830-81-3

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Waste Code	Waste Description	Hazard Code	CAS No.
U060	DDD		72-54-8
U061	DDT		50-29-3
U366	Dazomet.		533-74-4
U062	Diallate		2303-16-4
U063	Dibenz[a,h]anthracene		53-70-3
U064	Dibenzo[a,i]pyrene		189-55-9
U066	1,2-Dibromo-3-chloropropane		96-12-8
U069	Dibutyl phthalate		84-74-2
U070	o-Dichlorobenzene		95-50-1
U071	m-Dichlorobenzene		541-73-1
U072	p-Dichlorobenzene		106-46-7
U073	3,3'-Dichlorobenzidine		91-94-1
U074	1,4-Dichloro-2-butene (I,T)		764-41-0
U075	Dichlorodifluoromethane		75-71-8
U078	1,1-Dichloroethylene		75-35-4
U079	1,2-Dichloroethylene		156-60-5
U025	Dichloroethyl ether		111-44-4
U027	Dichloroisopropyl ether		108-60-1
U024	Dichloromethoxy ethane		111-91-1
U081	2,4-Dichlorophenol		120-83-2
U082	2,6-Dichlorophenol		87-65-0
U084	1,3-Dichloropropene		542-75-6
U085	1,2:3,4-Diepoxybutane (I,T)		1464-53-5
U395	Diethylene glycol, dicarbamate.		5952-26-1
U108	1,4-Diethyleneoxide		123-91-1
U028	Diethylhexyl phthalate		117-81-7
U086	N,N'-Diethylhydrazine		1615-80-1
U087	O,O-Diethyl S-methyl dithiophosphate		3288-58-2
U088	Diethyl phthalate		84-66-2
U089	Diethylstilbesterol		56-53-1
U090	Dihydrosafrole		94-58-6
U091	3,3'-Dimethoxybenzidine		119-90-4
U092	Dimethylamine (I)		124-40-3
U093	p-Dimethylaminoazobenzene		60-11-7
U094	7,12-Dimethylbenz[a]anthracene		57-97-6
U095	3,3'-Dimethylbenzidine		119-93-7
U096	alpha,alpha-Dimethylbenzylhydroperoxide (R)		80-15-9
U097	Dimethylcarbamoyl chloride		79-44-7
U098	1,1-Dimethylhydrazine		57-14-7
U099	1,2-Dimethylhydrazine		540-73-8
U101	2,4-Dimethylphenol		105-67-9
U102	Dimethyl phthalate		131-11-3
U103	Dimethyl sulfate		77-78-1
U105	2,4-Dinitrotoluene		121-14-2
U106	2,6-Dinitrotoluene		606-20-2
U107	Di-n-octyl phthalate		117-84-0
U108	1,4-Dioxane		123-91-1
U109	1,2-Diphenylhydrazine		122-66-7
U110	Dipropylamine (I)		142-84-7

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U111	Di-n-propylnitrosamine		621-64-7
U403	Disulfiram.		97-77-8
U041	Epichlorohydrin		106-89-8
U390	EPTC.		759-94-4
U001	Ethanal (I)		75-07-0
U174	Ethanamine, N-ethyl-N-nitroso-		55-18-5
U404	Ethanamine, N,N-diethyl		121-44-8
U155	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-		91-80-5
U067	Ethane, 1,2-dibromo-		106-93-4
U076	Ethane, 1,1-dichloro-		75-34-3
U077	Ethane, 1,2-dichloro-		107-06-2
U131	Ethane, hexachloro-		67-72-1
U024	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-		111-91-1
U117	Ethane, 1,1'-oxybis-(I)		60-29-7
U025	Ethane, 1,1'-oxybis[2-chloro-		111-44-4
U184	Ethane, pentachloro-		76-01-7
U208	Ethane, 1,1,1,2-tetrachloro-		630-20-6
U209	Ethane, 1,1,2,2-tetrachloro-		79-34-5
U218	Ethanethioamide		62-55-5
U410	Ethanimidothioic acid, N,N'-[thiobis[(methylimino)carbonyloxy]]bis-, dimethyl ester		59669-26-0
U394	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester.		30558-43-1
U226	Ethane, 1,1,1-trichloro-		71-55-6
U227	Ethane, 1,1,2-trichloro-		79-00-5
U359	Ethanol, 2-ethoxy-		110-80-5
U173	Ethanol, 2,2'-(nitrosoimino)bis-		1116-54-7
U395	Ethanol, 2,2'-oxybis-, dicarbamate.		5952-26-1
U004	Ethanone, 1-phenyl-		98-86-2
U043	Ethene, chloro-		75-01-4
U042	Ethene, (2-chloroethoxy)-		110-75-8
U078	Ethene, 1,1-dichloro-		75-35-4
U079	Ethene, 1,2-dichloro-, (E)-		156-60-5
U210	Ethene, tetrachloro-		127-18-4
U228	Ethene, trichloro-		79-01-6
U112	Ethyl acetate (I)		141-78-6
U113	Ethyl acrylate (I)		140-88-5
U238	Ethyl carbamate (urethane)		51-79-6
U117	Ethyl ether (I)		60-29-7
U114	Ethylenebisdithiocarbamic acid, salts & esters		1111-54-6
U067	Ethylene dibromide		106-93-4
U077	Ethylene dichloride		107-06-2
U359	Ethylene glycol monoethyl ether		110-80-5
U115	Ethylene oxide (I,T)		75-21-8
U116	Ethylenethiourea		96-45-7
U076	Ethylidene dichloride		75-34-3
U118	Ethyl methacrylate		97-63-2
U119	Ethyl methanesulfonate		62-50-0
U407	Ethyl Ziram.		14324-55-1

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U396	Ferbam.		14484-64-1
U120	Fluoranthene		206-44-0
U122	Formaldehyde		50-00-0
U123	Formic acid (C,T)		64-18-6
U124	Furan (I)		110-00-9
U125	2-Furancarboxaldehyde (I)		98-01-1
U147	2,5-Furandione		108-31-6
U213	Furan, tetrahydro-(I)		109-99-9
U125	Furfural (I)		98-01-1
U124	Furfuran (I)		110-00-9
U206	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-,D-		18883-66-4
U206	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-.carbonyl]amino]-		18883-66-4
U126	Glycidylaldehyde		765-34-4
U163	Guanidine, N-methyl-N'-nitro-N-nitroso-		70-25-7
U127	Hexachlorobenzene		118-74-1
U128	Hexachlorobutadiene		87-68-3
U130	Hexachlorocyclopentadiene		77-47-4
U131	Hexachloroethane		67-72-1
U132	Hexachlorophene		70-30-4
U243	Hexachloropropene		1888-71-7
U133	Hydrazine (R,T)		302-01-2
U086	Hydrazine, 1,2-diethyl-		1615-80-1
U098	Hydrazine, 1,1-dimethyl-		57-14-7
U099	Hydrazine, 1,2-dimethyl-		540-73-8
U109	Hydrazine, 1,2-diphenyl-		122-66-7
U134	Hydrofluoric acid (C,T)		7664-39-3
U134	Hydrogen fluoride (C,T)		7664-39-3
U135	Hydrogen sulfide		7783-06-4
U135	Hydrogen sulfide H2S		7783-06-4
U096	Hydroperoxide, 1-methyl-1-phenylethyl-(R)		80-15-9
U116	2-Imidazolidinethione		96-45-7
U137	Indeno[1,2,3-cd]pyrene		193-39-5
U375	3-Iodo-2-propynyl n-butylcarbamate.		55406-53-6
U396	Iron, tris(dimethylcarbamodithioato-S,S')-,		14484-64-1
U190	1,3-Isobenzofurandione		85-44-9
U140	Isobutyl alcohol (I,T)		78-83-1
U141	Isosafrole		120-58-1
U142	Kepone		143-50-0
U143	Lasiocarpine		303-34-4
U144	Lead acetate		301-04-2
U146	Lead, bis(acetato-O)tetrahydroxytri-		1335-32-6
U145	Lead phosphate		7446-27-7
U146	Lead subacetate		1335-32-6
U129	Lindane		58-89-9
U163	MNNG		70-25-7
U147	Maleic anhydride		108-31-6
U148	Maleic hydrazide		123-33-1
U149	Malononitrile		109-77-3
U150	Melphalan		148-82-3

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Waste Code	Waste Description	Hazard Code	CAS No.
U151	Mercury		7439-97-6
U384	Metam Sodium.		137-42-8
U152	Methacrylonitrile (I, T)		126-98-7
U092	Methanamine, N-methyl-(I)		124-40-3
U029	Methane, bromo-		74-83-9
U045	Methane, chloro-(I, T)		74-87-3
U046	Methane, chloromethoxy-		107-30-2
U068	Methane, dibromo-		74-95-3
U080	Methane, dichloro-		75-09-2
U075	Methane, dichlorodifluoro-		75-71-8
U138	Methane, iodo-		74-88-4
U119	Methanesulfonic acid, ethyl ester		62-50-0
U211	Methane, tetrachloro-		56-23-5
U153	Methanethiol (I, T)		74-93-1
U225	Methane, tribromo-		75-25-2
U044	Methane, trichloro-		67-66-3
U121	Methane, trichlorofluoro-		75-69-4
U036	4,7-Methano-1H-indene,1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-		57-74-9
U154	Methanol (I)		67-56-1
U155	Methapyrilene		91-80-5
U142	1,3,4-Metheno-2H-cyclobuta [cd]pentalen-2-one,1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-		143-50-0
U247	Methoxychlor		72-43-5
U154	Methyl alcohol (I)		67-56-1
U029	Methyl bromide		74-83-9
U186	1-Methylbutadiene (I)		504-60-9
U045	Methyl chloride (I,T)		74-87-3
U156	Methyl chlorocarbonate (I,T)		79-22-1
U226	Methyl chloroform		71-55-6
U157	3-Methylcholanthrene		56-49-5
U158	4,4'-Methylenebis(2-chloroaniline)		101-14-4
U068	Methylene bromide		74-95-3
U080	Methylene chloride		75-09-2
U159	Methyl ethyl ketone (MEK) (I,T)		78-93-3
U160	Methyl ethyl ketone peroxide (R,T)		1338-23-4
U138	Methyl iodide		74-88-4
U161	Methyl isobutyl ketone (I)		108-10-1
U162	Methyl methacrylate (I,T)		80-62-6
U161	4-Methyl-2-pentanone (I)		108-10-1
U164	Methylthiouracil		56-04-2
U010	Mitomycin C		50-07-7
U365	Molinate.		2212-67-1
U059	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6 ,8,11-trihydroxy-1-methoxy-, (8S-cis)-		20830-81-3
U167	1-Naphthalenamine		134-32-7
U168	2-Naphthalenamine		91-59-8
U026	Naphthalenamine, N,N'-bis(2-chloroethyl)-		494-03-1

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Waste Code	Waste Description	Hazard Code	CAS No.
U165	Naphthalene		91-20-3
U047	Naphthalene, 2-chloro-		91-58-7
U166	1,4-Naphthalenedione		130-15-4
U236	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-...dimethyl [1,1'-biphenyl]-4,4'-diyl)bis(azo)bis [5-amino-4-hydroxy]-, tetrasodium salt		72-57-1
U279	1-Naphthalenol, methylcarbamate.		63-25-2
U166	1,4-Naphthoquinone.		130-15-4
U167	alpha-Naphthylamine		134-32-7
U168	beta-Naphthylamine		91-59-8
U217	Nitric acid, thallium(1+) salt		10102-45-1
U169	Nitrobenzene (I,T)		98-95-3
U170	p-Nitrophenol		100-02-7
U171	2-Nitropropane (I,T)		79-46-9
U172	N-Nitrosodi-n-butylamine		924-16-3
U173	N-Nitrosodiethanolamine		1116-54-7
U174	N-Nitrosodiethylamine		55-18-5
U176	N-Nitroso-N-ethylurea		759-73-9
U177	N-Nitroso-N-methylurea		684-93-5
U178	N-Nitroso-N-methylurethane		615-53-2
U179	N-Nitrosopiperidine		100-75-4
U180	N-Nitrosopyrrolidine		930-55-2
U181	5-Nitro-o-toluidine		99-55-8
U193	1,2-Oxathiolane, 2,2-dioxide		1120-71-4
U058	2H-1,3,2-Oxazaphosphorin-2-amine,...N,N-bis(2-chloroethyl)te trahydro-, 2-oxide		50-18-0
U115	Oxirane (I,T)		75-21-8
U126	Oxiranecarboxyaldehyde		765-34-4
U041	Oxirane, (chloromethyl)-		106-89-8
U182	Paraldehyde		123-63-7
U391	Pebulate.		1114-71-2
U183	Pentachlorobenzene		608-93-5
U184	Pentachloroethane		76-01-7
U185	Pentachloronitrobenzene (PCNB)		82-68-8
U161	Pentanol, 4-methyl-		108-10-1
U186	1,3-Pentadiene (I)		504-60-9
U187	Phenacetin		62-44-2
U188	Phenol		108-95-2
U048	Phenol, 2-chloro-		95-57-8
U039	Phenol, 4-chloro-3-methyl-		59-50-7
U081	Phenol, 2,4-dichloro-		120-83-2
U082	Phenol, 2,6-dichloro-		87-65-0
U089	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-		56-53-1
U101	Phenol, 2,4-dimethyl-		105-67-9
U052	Phenol, methyl-		1319-77-3
U132	Phenol, 2,2'-methylenebis[3,4,6-trichloro-		70-30-4
U411	Phenol, 2-(1-methylethoxy)-, methylcarbamate.		114-26-1
U170	Phenol, 4-nitro-		100-02-7
U150	L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-		148-82-3
U145	Phosphoric acid, lead(2+) salt (2:3)		7446-27-7

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Waste Code	Waste Description	Hazard Code	CAS No.
U087	Phosphorodithioic acid, O,O-diethyl S-methyl ester		3288-58-2
U189	Phosphorus sulfide (R)		1314-80-3
U190	Phthalic anhydride		85-44-9
U191	2-Picoline		109-06-8
U179	Piperidine, 1-nitroso-		100-75-4
U400	Piperidine, 1,1'-(tetrathiodicarbonothioyl)-bis-		120-54-7
U383	Potassium dimethyldithiocarbamate.		128-03-0
U378	Potassium n-hydroxymethyl-n-methyldi-thiocarbamate.		51026-28-9
U377	Potassium n-methyldithiocarbamate.		137-41-7
U192	Pronamide		23950-58-5
U194	1-Propanamine (I,T)		107-10-8
U111	1-Propanamine, N-nitroso-N-propyl-		621-64-7
U110	1-Propanamine, N-propyl-(I)		142-84-7
U066	Propane, 1,2-dibromo-3-chloro-		96-12-8
U083	Propane, 1,2-dichloro-		78-87-5
U149	Propanedinitrile		109-77-3
U171	Propane, 2-nitro-(I,T)		79-46-9
U027	Propane, 2,2'-oxybis[2-chloro-		108-60-1
U193	1,3-Propane sultone		1120-71-4
U235	1-Propanol, 2,3-dibromo-, phosphate (3:1)		126-72-7
U140	1-Propanol, 2-methyl-(I,T)		78-83-1
U002	2-Propanone (I)		67-64-1
U007	2-Propenamide		79-06-1
U084	1-Propene, 1,3-dichloro-		542-75-6
U243	1-Propene, 1,1,2,3,3,3-hexachloro-		1888-71-7
U009	2-Propenenitrile		107-13-1
U152	2-Propenenitrile, 2-methyl-(I,T)		126-98-7
U008	2-Propenoic acid (I)		79-10-7
U113	2-Propenoic acid, ethyl ester (I)		140-88-5
U118	2-Propenoic acid, 2-methyl-, ethyl ester		97-63-2
U162	2-Propenoic acid, 2-methyl-, methyl ester (I,T)		80-62-6
U373	Propham.		122-42-9
U411	Propoxur.		114-26-1
U194	n-Propylamine (I,T)		107-10-8
U083	Propylene dichloride		78-87-5
U387	Prosulfocarb.		52888-80-9
U148	3,6-Pyridazinedione, 1,2-dihydro-		123-33-1
U196	Pyridine		110-86-1
U191	Pyridine, 2-methyl-		109-06-8
U237	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-		66-75-1
U164	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-		56-04-2
U180	Pyrrolidine, 1-nitroso-		930-55-2
U200	Reserpine		50-55-5
U201	Resorcinol		108-46-3
U202	Saccharin, & salts		181-07-2
U203	Safrole		94-59-7
U204	Selenious acid		7783-00-8
U204	Selenium dioxide		7783-00-8
U205	Selenium sulfide		7488-56-4

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U205	Selenium sulfide SeS2 (R,T)		7488-56-4
U376	Selenium, tetrakis(dimethyldithiocarbamate).		144-34-3
U015	L-Serine, diazoacetate (ester)		115-02-6
U379	Sodium dibutyldithiocarbamate.		136-30-1
U381	Sodium diethyldithiocarbamate.		148-18-5
U382	Sodium dimethyldithiocarbamate.		128-04-1
U206	Streptozotocin		18883-66-4
U277	Sulfallate.		95-06-7
U103	Sulfuric acid, dimethyl ester		77-78-1
U189	Sulfur phosphide (R)		1314-80-3
U402	Tetrabutylthiuram disulfide.		1634-02-2
U207	1,2,4,5-Tetrachlorobenzene		95-94-3
U208	1,1,1,2-Tetrachloroethane		630-20-6
U209	1,1,2,2-Tetrachloroethane		79-34-5
U210	Tetrachloroethylene		127-18-4
U213	Tetrahydrofuran (I)		109-99-9
U401	Tetramethylthiuram monosulfide.		97-74-5
U214	Thallium(I) acetate		563-68-8
U215	Thallium(I) carbonate		6533-73-9
U216	Thallium(I) chloride		7791-12-0
U216	Thallium chloride Tlcl		7791-12-0
U217	Thallium(I) nitrate		10102-45-1
U366	2H-1,3,5-Thiadiazine-2-thione, tetrahydro-3,5-dimethyl-		533-74-4
U218	Thioacetamide		62-55-5
U410	Thiodicarb.		59669-26-0
U153	Thiomethanol (I,T)		74-93-1
U402	Thioperoxydicarbonic diamide, tetrabutyl.		1634-02-2
U403	Thioperoxydicarbonic diamide, tetraethyl.		97-77-8
U244	Thioperoxydicarbonic diamide [(H2N)C(S)]2S2,		137-26-8
	tetramethyl-		
U409	Thiophanate-methyl.		23564-05-8
U219	Thiourea		62-56-6
U244	Thiram		137-26-8
U220	Toluene		108-88-3
U221	Toluenediamine		25376-45-8
U223	Toluene diisocyanate (R,T)		26471-62-5
U328	o-Toluidine		95-53-4
U353	p-Toluidine		106-49-0
U222	o-Toluidine hydrochloride		636-21-5
U389	Triallate.		2303-17-5
U011	1H-1,2,4-Triazol-3-amine		61-82-5
U227	1,1,2-Trichloroethane		79-00-5
U228	Trichloroethylene		79-01-6
U121	Trichloromonofluoromethane		75-69-4
U404	Triethylamine.		121-44-8
U234	1,3,5-Trinitrobenzene (R,T)		99-35-4
U182	1,3,5-Trioxane, 2,4,6-trimethyl-		123-63-7
U235	Tris(2,3-dibromopropyl) phosphate		126-72-7
U236	Trypan blue		72-57-1

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Waste Code	Waste Description	Hazard Code	CAS No.
U237	Uracil mustard		66-75-1
U176	Urea, N-ethyl-N-nitroso-		759-73-9
U177	Urea, N-methyl-N-nitroso-		684-93-5
U385	Vernolate.		1929-77-7
U043	Vinyl chloride		75-01-4
U248	Warfarin, & salts, when present at concentrations of 0.3% or less		181-81-2
U239	Xylene (I)		1330-20-7
U200	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-		50-55-5
U407	Zinc, bis(diethylcarbamodithioato-S,S')-		14324-55-1
U249	Zinc phosphide Zn3P2, when present at concentrations of 10% or less		1314-84-7
001D	Copper		
003D	Zinc		
001S	Aflatoxin		
001K	Residues, including emission control sludges, from the production process and packaging of 4,4' Methylenebis (2 chloroaniline)	(T)	
002K	Wash acids generated after the effective date of these rules from the production of 3,3' - Dichlorobenzidine and still bottoms from the recovery of these acids, excluding wash acids that are recycled or any materials that are reclaimed from the wash acids and are used beneficially	(T)	
001U	Actinomycin D		
002U	Allyl chloride		
003U	2-aminoanthraquinone		
004U	Aminoazobenzene		
005U	0-aminoazotoluene		
006U	4-aminobiphenyl		
007U	3-amino-9-ethyl carbazole		
157U	3-amino-9-ethyl carbazole hydrochloride		
008U	1-amino-2-methyl anthraquinone		
009U	Anilazine		
158U	Aniline hydrochloride		
011U	o-Anisidine		
012U	o-Anisidine hydrochloride		
013U	Antimony (when in the form of particles 100 microns or less)		
014U	Antimycin A		
147U	Azinphosethyl		
148U	Azinphosmethyl		
159U	Azobenzene		
015U	Barban		
016U	Bendiocarb		
017U	Benomyl		
020U	Bromoxynil		
160U	1,3-Butadiene		
161U	Butyl benzl phthalate		
021U	2-(ptertButylphenoxy)isopropyl 2-chloroethyl sulfite		
022U	Captafol		
023U	Captan		

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Waste Code	Waste Description	Hazard Code	CAS No.
024U	Carbaryl		
025U	Carbofuran		
027U	Carbophenothion		
028U	Chloramines		
152U	Chlorfenuinphos		
029U	Chloropyrifos		
030U	Chlorinated dibenzofurans (other than those listed in Table 202)		
031U	Chlorinated dioxins (other than those listed in Table 202)		
032U	Chlorine gas		
033U	2-Chloroethanol		
034U	3-(Chloromethyl) pyridine hydrochloride		
150U	pchlorophenol		
162U	1-chloro-4-phenoxybenzene		
036U	4-chloromphenylenediamine		
037U	4-chloroophenylenediamine		
038U	Chloroprene		
163U	1-chloropropene		
151U	5-chloroototoluidene		
040U	Clonitralid		
041U	Cobalt (when in the form of particles 100 microns or less)		
042U	Coumaphos		
043U	pCresidine		
044U	Crotoxyphos		
046U	Cycloheximide		
164U	P,P' DDE		
047U	Demeton		
048U	2,4-Diaminoanisole sulfate		
049U	4,4'-Diaminodiphenyl ether		
050U	2,4-Diaminotoluene		
051U	Diazinon		
052U	Dichlone		
054U	Dichlorvos		
055U	Dichrotophos		
056U	Diethyl sulfate		
165U	N,N'-Diethylthiourea		
057U	Dinocap		
058U	Dioxathion		
059U	EPN		
166U	1,2-Epoxybutane		
061U	Ethion		
063U	Fensulfothion		
064U	Fenthion		
065U	Fluchloralin		
068U	Hexamethyl phosphoramide		
070U	Hydroquinone		
071U	N-(2-Hydroxyethyl) ethyleneimine		
072U	Hypochlorite		
073U	Isonicotinic acid hydrazine		
167U	Kanechlor C		

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Waste Code	Waste Description	Hazard Code	CAS No.
074U	Ketene		
075U	Lactonitril		
076U	Leptophos		
077U	Lithium and compounds		
078U	Malachite green		
079U	Malathion		
080U	Mestranol		
152U	Methacrylonitrile		
082U	4,4'-Methylenebis(2methylaniline)		
083U	4,4'-Methylenebis(N,Ndimethylaniline)		
086U	1-Methylnaphthalene		
088U	Mevinphos		
089U	Mexacarbate		
090U	Mirex		
092U	Monocrotophos		
093U	Mustard gas		
094U	Naled		
095U	1,5-Napthalenediamine		
096U	Nickel (when in the form of particles 100 microns or less)		
097U	Niridazole		
098U	Nithiazide		
099U	5-Nitroacenaphthene		
100U	Nitrooanisidine		
101U	Nitrobiphenyl		
102U	Nitrofen		
103U	N-(4-(5-nitro-2-furanyl)2-thiazolyl)acetamide		
104U	Nitrogen mustard		
106U	p-Nitrosodiphenylamine		
168U	N-Nitrosomethylvinylamine		
108U	N-nitroso-N-phenylhydroxylamine, ammonium salt		
169U	Octachlorostyrene		
110U	Oxydemetonmethyl		
111U	Paraquat		
112U	Peroxyacetic acid		
113U	Phenazopyridine hydrochloride		
114U	Phenesterin		
115U	Phenobarbitol		
116U	Phenytoin		
117U	Phenytoin sodium		
118U	Phosazetim		
119U	Phosmet		
120U	Phosphamidon		
121U	Piperonyl sulfoxide		
122U	Polybrominated biphenyls (PBB)		
124U	Propiolactone		
127U	Propylthiouracil		
128U	Rotenone		
129U	Semicarbazide		
170U	Semicarbazide hydrochloride		

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Waste Code	Waste Description	Hazard Code	CAS No.
153U	Sodium fluoroacetate		
131U	Styrene		
132U	Sulfallate		
134U	TDE		
135U	TEPP		
136U	Terbufos		
137U	Tetrachlorvinphos		
138U	4,4'-Thiodianiline		
139U	o-Toluidine		
140U	Triaryl phosphate esters		
154U	bis(Trinbutyl tin) oxide		
171U	Tributyltin (and other salts and esters)		
172U	1,2,3-Trichlorobenzene		
173U	1,2,4-Trichlorobenzene		
141U	Trichlorfon		
142U	Trifluralin		
143U	2,4,5-Trimethylaniline		
144U	Triamethylphosphate		
174U	Urethane		
175U	Vinyl bromide		
155U	Vinylidene chloride		
146U	Ziram		
	Aroclor 1016		
	Aroclor 1221		
	Aroclor 1232		
	Aroclor 1242		
	Aroclor 1254		
	Aroclor 1260		

ATTACHMENT 9

PROCEDURES TO PREVENTION IGNITION

PRECAUTIONS TO PREVENT ACCIDENTAL IGNITION OF IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTES

40 CFR 264.17

AND

MI ACT 451, Part 111

PRECAUTIONS TO PREVENT ACCIDENTAL IGNITION OF IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTES

40 CFR 264.17 and MI Act 451, Part 111

Michigan Disposal Waste Treatment Plant accepts for treatment, reactive or incompatible waste streams or waste streams with a flash point less than 90°F or with listed solvent concentrations greater than 20%. Thus, the Waste Analysis Plan plays a major role in preventing accidental ignition in waste treatment areas by preventing flammable wastes from entering storage tanks connected to the treatment system. Ignitable waste material that is accepted for treatment at or above 90°F is by its very nature a waste already diluted in a non-flammable aqueous matrix.

Michigan Disposal Waste Treatment Plant consists of two separately enclosed processing areas, the east side and west side. The east side air pollution control equipment consists of a baghouse, regenerative thermal oxidizer, and an acid scrubber. And the west side air pollution control equipment consists of a baghouse and activated carbon. The air pollution control equipment creates approximately 20,000 CFM air exchange throughout the east side of the plant and approximately 100,000 CFM air exchange throughout the west side of the plant area, which eliminates buildup of a potentially hazardous environment inside the building.

Flammable wastes may be received in two storage tanks numbered 18 and 19. These flammable wastes are stored in above ground tanks. Tanks are located outside in a diked area. Wastes are top-loaded into tank via rigid piping, which runs down three-fourths the height of the tank prior to discharge. Tanks are equipped with combination pressure relief valves/flesh arrestors on top and high temperature cut-off valves at the bottom. These tanks are constructed and located in compliance with NFPA Chapter 30 regulations for flammable liquids, or in the vicinity of loading flammable liquids.

Combustible or flammable wastes received in containers will be staged and stored in an area with similar compatible materials. Drums remain closed during storage.

No smoking is allowed around the unloading, storage, or processing facilities. Maintenance work done at the plant follows the same standards described above for operation work. A Hot Work Permit will be granted in advance and on going air monitoring will continue to prevent a flammable atmosphere before any operation goes underway.

ATTACHMENT 10

TANK SYSTEMS PLANS AND SPECIFICATIONS

PART I: PLANT DESIGN AND OPERATION

1.0 INTRODUCTION

Twenty one tanks that are permitted for hazardous waste storage and/or treatment are described in this section. The tanks are all involved in the waste management processes described throughout this application.

2.0 RESPONSE TO 40 CFR 270.16

270.16 (a) The design standards used for Michigan Disposal Waste Treatment Plant tanks include U. L. Standard 142 and good engineering practices.

270.16 (b) All Michigan Disposal Waste Treatment Plant tanks are constructed of mild steel. Waste incompatible with the materials of construction of a tank are not placed in tanks by Michigan Disposal Waste Treatment Plant. For purposes of determining compatibility, the Waste Analysis Plan, Compatibility Tests are used. Tank linings, where applicable, are described in the Tank Specifications paragraph of this section. Tank linings are also described on engineering drawing M-9, Mechanical Specifications..

270.16 (c) Tank dimensions, capacities and shell thickness are listed separately for each tank in this section on the following pages. Annually, tank shell thickness data will continue to be accumulated and maintained in Michigan Disposal Waste Treatment Plant's inspection operating log.

270.16 (d) Diagrams of piping, instrumentation and process flow have been included in the engineering plans. See drawing M-1. Process Flow Diagram and Drawing Sup-8 Schematic and Details.

270.16 (e) Tanks 7A, 7B, 8A, 8B, 9A, 9B, 10A, 10B, 11 and 12 are continuously monitored by on-site personnel during loading into the tank to ensure that no spills occur and that adequate freeboard is maintained at all times. The dust storage tanks are equipped with high level indicators installed at 3/4 capacity level allowing the operator sufficient time to shut down the blower units, preventing overfilling. These units are equipped with Stevens SV-380 (or equivalent) dust collectors for venting and pollution control. Tanks 14 and 15 are checked manually by visual means, and this is accomplished by a plant operator being present at all times and having the controls within reach to shut down any feed systems to the tank. Michigan Disposal Waste Treatment Plant's processing procedure demands constant attention while the plant is operating which means there is always a plant operator controlling feed systems during operation. In tanks 14 and 15, a minimum freeboard of twelve inches is maintained at all times. These tanks are also within the processing building which eliminates the possibility of over topping by wind or precipitation.

270.16 (f) Michigan Disposal Waste Treatment Plant does not accept or reactive wastes. Procedures for handling ignitable wastes are described in Section A-25 "Precautions to Prevent Accidental Ignition."

3.0 DESCRIPTION OF TANKS AND MATERIALS OF CONSTRUCTION

All of the cylindrical steel tanks proposed below meet or exceed the requirements of U. L. Standard 142 and NFPA Pamphlet 30 for storage of "Flammable and Combustible Liquids". All of Michigan Disposal Waste Treatment Plant's tanks are constructed of mild steel of the proper shell thickness verified by test results completed on an annual basis and logged in Michigan Disposal Waste Treatment Plant's inspection operating log. Rectangular tanks have been designed using good engineering standards, taking into consideration height, weight, width, materials of construction and specific gravity of waste to be placed into the tanks. Engineering drawings and specifications are included with this application. Also included is appropriate foundation and structural support information used in the construction of the tanks.

In Section A-21, are the tank inspection forms that are conducted on a daily, monthly, and annual basis to detect any damage, leaks, cracks, corrosion or erosion of the tank construction materials that may occur. Michigan Disposal Waste Treatment Plant does not store waste in a tank that would be incompatible with the construction material of that tank. In the event there is a waste that may enhance corrosion or erosion, that waste will be stored in a tank lined with materials compatible with the corrosive waste.

A tank numbering diagram is found in the engineering plans, Drawing S-113, Traffic Flow Plan.

Tank Specifications

Tank #1 - Steel Cylindrical Vertical Tank

Dimensions:	10' x 40' cone bottom
Shell Thickness:	1/4" steel
Liner:	None
Venting:	Stevens SV-380 dust collector or equivalent
Overfilling:	High level Bin-Dicator alarm or equivalent at three-fourth capacity level.
Use:	Hazardous waste/Cement kiln dust storage

Tank #2 - Steel Cylindrical Vertical Tank

Dimensions:	10' x 40' cone bottom
Shell Thickness:	1/4" steel
Liner:	None
Venting:	Stevens SV-380 dust collector or equivalent
Overfilling:	High level Bin-Dicator alarm or equivalent at three-fourth capacity level.
Use:	Hazardous waste/Cement kiln dust storage

Tank #3- Steel Cylindrical Vertical Tank

Dimensions:	10' x 40' cone bottom
Shell Thickness:	1/4" steel
Liner:	None
Venting:	Stevens SV-380 dust collector or equivalent
Overfilling:	High level Bin-Dicator alarm or equivalent at three-fourth capacity level.
Use:	Hazardous waste/Cement kiln dust storage

Tank #7A- Steel Rectangular Tank

Dimensions:	14'7 1/2" W x 34'2 1/2" L x 14'6" D
Capacity:	267 yards (6" freeboard).
Shell Thickness:	Minimum 3/8" steel
Liner:	None. The tank is designed as a steel tank within a concrete containment structure. The concrete containment provides secondary containment.
Venting:	Tank is enclosed in a building ventilated by a dust and VOC air pollution control system.
Overfilling:	All loading operations are manually inspected by Michigan Disposal Waste Treatment Plant personnel.
Use:	Tank is used to receive treated wastes from Tank #14 and untreated waste directly as shipments.

Tank #7B- Steel Rectangular Tank

Dimensions:	14'7 1/2" W x 34'2 1/2" L x 14'6" D
Capacity:	267 yards (6" freeboard).
Shell Thickness:	Minimum 3/8" steel
Liner:	None. The tank is designed as a steel tank within a concrete containment structure. The concrete containment provides secondary containment.
Venting:	Tank is enclosed in a building ventilated by a dust and VOC air pollution control system.
Overfilling:	All loading operations are manually inspected by Michigan Disposal Waste Treatment Plant personnel.
Use:	Tank is used to receive treated wastes from Tank #14 and untreated waste directly as shipments.

Tank #8A- Steel Rectangular Tank	
Dimensions:	11'11 1/2" W x 34'2 1/2" L x 14'6" D
Capacity:	216 yards (6" freeboard).
Shell Thickness:	Minimum 3/8" steel
Liner:	None. The tank is designed as a steel tank within a concrete containment structure. The concrete containment provides secondary containment.
Venting:	Tank is enclosed in a building ventilated by a dust and VOC air pollution control system.
Overfilling:	All loading operations are manually inspected by Michigan Disposal Waste Treatment Plant personnel.
Use:	Tank is used to receive treated wastes from Tank #14 and untreated waste directly as shipments.

Tank #8B- Steel Rectangular Tank	
Dimensions:	11'11 1/2" W x 34'2 1/2" L x 14'6" D
Capacity:	216 yards (6" freeboard).
Shell Thickness:	Minimum 3/8" steel
Liner:	None. The tank is designed as a steel tank within a concrete containment structure. The concrete containment provides secondary containment.
Venting:	Tank is enclosed in a building ventilated by a dust and VOC air pollution control system.
Overfilling:	All loading operations are manually inspected by Michigan Disposal Waste Treatment Plant personnel.
Use:	Tank is used to receive treated wastes from Tank #14 and untreated waste directly as shipments.

Tank #9A- Steel Rectangular Tank

Dimensions:	11'11 1/2" W x 34'2 1/2" L x 14'6" D
Capacity:	216 yards (6" freeboard).
Shell Thickness:	Minimum 3/8" steel
Liner:	None. The tank is designed as a steel tank within a concrete containment structure. The concrete containment provides secondary containment.
Venting:	Tank is enclosed in a building ventilated by a dust and VOC air pollution control system.
Overfilling:	All loading operations are manually inspected by Michigan Disposal Waste Treatment Plant personnel.
Use:	Tank is used to receive treated wastes from Tank #15 and untreated waste directly as shipments.

Tank #9B- Steel Rectangular Tank

Dimensions:	11'11 1/2" W x 34'2 1/2" L x 14'6" D
Capacity:	216 yards (6" freeboard)
Shell Thickness:	Minimum 3/8" steel
Liner:	None. The tank is designed as a steel tank within a concrete containment structure. The concrete containment provides secondary containment.
Venting:	Tank is enclosed in a building ventilated by a dust and VOC air pollution control system.
Overfilling:	All loading operations are manually inspected by Michigan Disposal Waste Treatment Plant personnel.
Use:	Tank is used to receive treated wastes from Tank #15 and untreated waste directly as shipments.

Tank #10A- Steel Rectangular Tank	
Dimensions:	14'7 1/2" W x 34'2 1/2" L x 14'6" D
Capacity:'	267 yards (6" freeboard)
Shell Thickness:	Minimum 3/8" steel
Liner:	None. The tank is designed as a steel tank within a concrete containment structure. The concrete containment provides secondary containment.
Venting:	Tank is enclosed in a building ventilated by a dust and VOC air pollution control system.
Overfilling:	All loading operations are manually inspected by Michigan Disposal Waste Treatment Plant personnel.
Use:	Tank is used to receive treated wastes from Tank #15 and untreated waste directly as shipments.

Tank #10B- Steel Rectangular Tank	
Dimensions:	14'7 1/2" W x 34'2 1/2" L x 14'6" D
Capacity:	267 yards (6" freeboard)
Shell Thickness:	Minimum 3/8" steel
Liner:	None. The tank is designed as a steel tank within a concrete containment structure. The concrete containment provides secondary containment.
Venting:	Tank is enclosed in a building ventilated by a dust and VOC air pollution control system.
Overfilling:	All loading operations are manually inspected by Michigan Disposal Waste Treatment Plant personnel.
Use:	Tank is used to receive treated wastes from Tank #15 and untreated waste directly as shipments.

Tank #11 - Steel Rectangular Tank	
Dimensions:	See engineering plans; drawings S-8, S-9 and S-10, structural sections.
Capacity:	40,000 gallons
Shell Thickness:	Minimum 3/8" thick steel. The tank is designed as a steel tank within a concrete containment structure. The concrete serves as secondary containment.
Liner:	None. Double walled tank construction.
Venting:	Connected to the dust and VOC control system.
Overfilling:	All loading operations are manually inspected by Michigan Disposal Waste Treatment Plant personnel. A high level detector triggers an audible alarm at the 6" freeboard level, indicating all loading must stop.
Use:	Liquid and sludge storage, process feed tank.

Tank #12 - Steel Rectangular Tank	
Dimensions:	See engineering plans; drawings S-8, S-9 and S-10, structural sections.
Capacity:	40,000 gallons
Shell Thickness:	Minimum 3/8" thick steel. The tank is designed as a steel tank within a concrete containment structure. The concrete serves as secondary containment.
Liner:	None. Double walled tank construction.
Venting:	Connected to the dust and VOC control system.
Overfilling:	All loading operations are manually inspected by Michigan Disposal Waste Treatment Plant personnel. A high level detector triggers an audible alarm at the 6" freeboard level, indicating all loading must stop.
Use:	Liquid and sludge storage, process feed tank.

Tank #14 - Pugmill Mixer	
Dimensions:	4.5' W x 10' L x 3' D
Capacity:	1/2 cubic yard agitating capacity
Shell:	3/16" - 5/16" thick steel
Liner:	Abrasion liners in mixing chamber; 3/16" steel
Venting:	Connected to the dust and VOC control system.
Overfilling:	Manual - visual inspection during processing. A flow through mixing device that is continuously gravity fed and unloaded, during processing.
Use:	Processing of dusts, liquids and sludges.

Tank #15 - Pugmill Mixer	
Dimensions:	4.5' W x 10' L x 3' D
Capacity:	1/2 cubic yard agitating capacity
Shell:	3/16" - 5/16" thick steel
Liner:	Abrasion liners in mixing chamber; 3/16" steel
Venting:	Connected to the dust and VOC control system.
Overfilling:	Manual - visual inspection during processing. A flow through mixing device that is continuously gravity fed and unloaded, during processing.
Use:	Processing of dusts, liquids and sludges.

Tank #16 - Steel Cylindrical Vertical Tank	
Dimensions:	20' x 12' with 6' 45 degree cone bottom
Capacity:	20,000 gallons
Shell Thickness:	1/4" steel
Liner:	Plasite 4300, by Wisconsin Protective Coating.
Venting:	Emergency relief vent, pressure-vacuum vent
Overfilling:	High level indicator alarm and equipped with weight-lite liquid level indicator.
Use:	Liquid waste storage, waste to be stabilized.

Tank #17 - Steel Cylindrical Vertical Tank	
Dimensions:	20' x 12' with 6' 45 degree cone bottom
Capacity:	20,000 gallons
Shell Thickness:	1/4" steel
Liner:	Plasite 4300, by Wisconsin Protective Coating.
Venting:	Emergency relief vent, pressure-vacuum vent
Overfilling:	High level indicator alarm and equipped with weight-lite liquid level indicator.
Use:	Liquid waste storage, waste to be stabilized.

Tank #18 - Steel Cylindrical Vertical Tank	
Dimensions:	20' x 12' with 6' 45 degree cone bottom
Capacity:	20,000 gallons
Shell Thickness:	1/4" steel
Liner:	Plasite 4300, by Wisconsin Protective Coating.
Venting:	Emergency relief vent, pressure-vacuum vent
Overfilling:	High level indicator alarm and equipped with weight-lite liquid level indicator.
Use:	Liquid waste storage, waste to be stabilized.

Tank #19 - Steel Cylindrical Vertical Tank	
Dimensions:	20' x 12' with 6' 45 degree cone bottom
Capacity:	20,000 gallons
Shell Thickness:	1/4" steel
Liner:	Plasite 4300, by Wisconsin Protective Coating.
Venting:	Emergency relief vent, pressure-vacuum vent
Overfilling:	High level indicator alarm and equipped with weight-lite liquid level indicator.
Use:	Liquid waste storage, waste to be stabilized.

Tank #25 - Vertical Fiberglass Tank	
Dimensions:	12' x 25'
Capacity:	20,000 gallons
Shell:	Fiberglass, insulated and heat-traced.
Venting:	Emergency relief vent, vacuum/pressure vent indicator alarm, equipped with weight-lite liquid level indicator.
Overfilling:	High level indicator alarm and equipped with a weight-lite level indicator.
Use:	Storage of sodium hypochlorite, directly feeds Tank #14 or Tank #15. Prior to the introduction of hazardous wastes, Tank #25 is rinsed and emptied. All wastes are evaluated for tank liner compatibility and waste-waste compatibility prior to acceptance.

Tank #27 - Vertical Fiberglass Tank	
Dimensions:	12' x 25'
Capacity:	20,000 gallons
Shell:	Fiberglass, insulated and heat-traced.
Venting:	Emergency relief vent, vacuum/pressure vent indicator alarm, equipped with weight-lite liquid level indicator.
Overfilling:	High level indicator alarm and equipped with weight-lite level indicator.
Use:	Storage of sodium hypochlorite, directly feeds Tank #14 or Tank #15. Prior to the introduction of hazardous wastes, Tank #27 is rinsed and emptied. All wastes are evaluated for tank liner compatibility and waste-waste compatibility prior to acceptance.

4.0 DESCRIPTION OF TANK SYSTEMS AND OPERATION

4.1 Dust Storage Silos: Tanks 1, 2, and 3

Tanks 1, 2, and 3 may receive and store hazardous wastes or reagents and feed Tank 14 (the west pugmill). Tanks 4, 5, and 6 may receive and store non-hazardous wastes or reagents and feed Tank 15 (the east pugmill). Other than the difference mentioned in the first two sentences, the tanks are filled and emptied in an identical fashion.

Dust storage silos are designed to receive dusts for treatment and waste stabilization reagents discussed in Method of Treatment. Dusts are transported in bulk pneumatic tankers to Michigan Disposal Waste Treatment Plant. After the load is accepted, pneumatic tankers are placed adjacent to the silo to be filled. A blower line is connected to the pneumatic tanker and to the silo. The blower is turned on, forcing approximately 1000 cfm through the pneumatic tanker, fluffing and conveying dust through the discharge hose to the silo fill line to a discharge point within the silo. Exhaust gasses escape through a baghouse, dusts are trapped and fall into the silo.

Dust is fed from the base of each silo through a variable speed rotary vane feeder into a screw conveyor feeding a pugmill. Feed rates are varied to obtain proper treatment ratios for different types of wastes. Dusts may be fed from one or all silos simultaneously.

4.2 Storage Tanks 11 and 12

Tanks 11 and 12 receive liquids and sludges primarily function as a liquid source with which to combine dry reagents in the pugmill. Care is taken put only waste codes in these tanks that are similar to the treatment batches with which they will be mixed. For example, F006, F007, F008 F009, F011, F012 and F019 may be commingled. If treatment standards are not comparable, wastes are placed directly into treatment tanks 7A, 7B, 8A, 8B, 9A, 9B, 10A and 10B. Slurried waste is screw conveyed from Tanks 11 to Tank 14, the west pugmill. Slurried waste is screw conveyed from Tank 12 to Tank 15, the east pugmill.

The tanks are constructed identically. Generally rectangular in shape, the bottom slopes toward the north and center of the plant for each tank. At the low point of the tank a screw conveyor draws liquid and sludges from the tank and into appropriate pugmill.

The screw conveyor is a modified pump capable of operating at various speeds and controlled by the operator running the pugmill.

Tanks 11 and 12 are typically gravity fed. Wastes are ususally delivered to tanks 11 and 12 by bulk tankers. A minimum freeboard of 6 inches is maintained at all times. A high level detector will trigger an audible alarm in the event the freeboard limit is reached. The audible alarm indicates all tank filling operations must stop.

Each tank is built completely within a concrete containment structure. The base of the concrete containment slopes toward the north and center of the tank to a low point at the northeast corner of Tank 11 and the northwest corner of Tank 12. At the low point of each tank a monitoring well is connected to detect significant quantities of liquid leaking out of the primary containment. Every 24 hours a measuring stick is dropped into the monitoring well to detect any accumulated liquids. A submersible 2" diameter pump is lowered into the well and the freely pumpable liquid is evacuated to waiting containers.

If it is determined that waste has entered the secondary containment, the tank is emptied and surveyed for the leak, the leak is repaired, the repair is tested, the repair is ceritified by an independent engineer, and the tank is placed back into service. Engineering Plan, M-7, Schedules and Details, shows the detail for a secondary containment monitoring well.

4.3 Pugmills: Tanks 14 and 15

Tank 14 receives dusts from Tanks 1, 2, and 3, liquids, sludges and slurries from Tanks 11, 16, 17, 18, 19, 25 and 27; discharging a treated waste slurry to Tanks 7A, 7B, 8A and 8B.

Tank 15 receives dusts from Tanks 4, 5, and 6, liquids, sludges and slurries from Tanks 12, 16, 17, 18, 19, 25 and 27; discharging a treated waste slurry to Tanks 9A, 9B, 10A and 10B.

Tanks 14 and 15 are pugmill mixers manufactured by Davis-Built Fabricating Company.

The pugmills are a flow through device. Wastes are fed into the north end of each pugmill. The waste is mixed by paddles mounted on counter rotating shafts running the length of the pugmill, then gravity discharged to a screw conveyor beneath the pugmill mixer. The screw conveyor carries treated waste to the treatment tanks.

The pugmill mixers are considered tanks for classification purposes only, their construction, operation and monitoring are not easily described in terms of a tank.

An operator first starts the pugmill, then initiates dust feed from the silos followed immediately by liquid feed from Tanks 11 or 12 or Tanks 16, 17, 18, 19, 25 or 27. Variable speed adjustments for all feeds are present at a control panel adjacent to the pugmill. Feeds are adjusted to predetermined levels and processing of wastes begin. The treatment operation is shut down in the reverse order described above.

In event of a spill, each pugmill room contains a floor drain, connected to the north trench drain located along the north retaining wall.

4.4 Storage/Treatment Tanks 7, 8, 9, and 10.

Tanks 7 and 8 are each divided into two compartments, all four compartments receive wastes treated in Tank 14. In addition, Tanks 7 and 8 receive liquid and solid waste directly from bulk trailers and containers as described in Method of Treatment section of this application.

Tanks 9 and 10 are each divided into two compartments, all four compartments receive wastes treated in Tank 15. Tanks 9 and 10 also receive liquid and solid waste directly from bulk trailers and containers as described in Method of Treatment section of this application.

Adequate freeboard is maintained in all compartments and tanks at all times.

After treatment, waste is removed from the tanks with an excavator and placed into a vessel for transport to the final disposal facility. Post-treatment testing as described in Method of Treatment section of this application may be performed before or after the waste is removed from tanks 7, 8, 9, and 10, but is performed before wastes are transported to the final disposal facility.

Tanks 7, 8, 9, and 10 are rectangular steel tanks constructed completely within a rectangular concrete tank. The outer concrete tanks acts as secondary containment. The tanks and secondary containment slope to the north and center of each tank. A monitoring well is located at the low point of each secondary containment unit. The well is designed and detected liquid is managed as described in above in Section 4 (b) Storage Tanks 11 and 12.

4.5 Waste to be Treated: Tanks 16, 17, 18, 19, 25 and 27

Tanks 16, 17, 18, 19, 25 and 27 are located in the tank farm in the northeast corner of the East Container Staging Area. These tanks are filled by one of two pumps located in the unloading station along the north retaining wall between the North Container Storage Area and the East Container Staging Area. The valving, filling, and discharge options available for Tanks 16, 17, 18, and 19 are described schematically on Engineering Plan M-1, Process Flow Diagram. The valving, filling and discharge options available for Tanks 25 and 27 are described schematically on Engineering Plan Sup-8, Schematic and Details.

A typical filling procedure takes place as follows:

1. Tank to be filled is selected by the laboratory.
2. Tank level and log sheets are checked to ensure there is sufficient room to hold the load.
3. Pump to be used is selected.
4. Valving between the pump and tank is properly aligned.
5. The tanker truck is connected to the pump.
6. The open valve line between the pump and tank is physically retraced. All valves tied off the main feed line are checked and placed in the closed position.
7. The truck valve is opened and the pump started, delivering waste or reagents to the selected tank.
8. After the truck is emptied, the pump is shut down.
9. The suction valve adjacent to the pump is closed.
10. The truck valve is closed and flexible connection removed between the pump and truck.
11. A 1.5" clean water flush line is attached to the suction end of the pump.
12. The suction valve is opened and the pump started to flush out the line.
13. Tank numbers are stenciled on each tank. The word "fill" or "discharge", tanks numbers and direction arrows are stenciled on all fill and discharge lines dedicated to an individual tank. Stencils are placed in a location easily seen by the operator.

The contents of the storage tanks can be transferred to one of the pugmills or tanks (#11, 12, 14 or 15) following an identical sequence. For the transfer sequence, the tanker trucks discharge line is simply replaced with the rigid plumbing between the tanks.discharge line and the selected pump. A tank log is maintained for each tank.

5.0 SECONDARY CONTAINMENT SYSTEMS

Secondary containment is provided for tanks 16, 17, 18, 19, 25 and 27, by the concrete retaining wall on two sides and a concrete dike on the other two sides.

Liquid collected in the secondary containment is considered potentially contaminated rainwater and transferred to a wastewater pre-treatment plant jointly operated by Wayne Disposal, Inc. and MDWTP for treatment prior to discharge to the Wayne County Sewer System. Liquid is transferred from the tanks to the Wayne Disposal wastewater treatment plant by tanker truck, vacuum truck or by direct pipeline to the plant. The wastewater pre-treatment plant is operated under a Class D Industrial Wastewater Discharge Permit Number D-11201 issued by the Wayne County Department of Public Works.

If a spill has occurred into the secondary containment the accumulated liquid is considered a hazardous waste with a waste type identical to waste types present in the leaking tank.

Liquid accumulated in the secondary containment structure is removed upon detection. The structure is inspected at least once a day when waste is handled in the tanks. Accumulated iquid is transferred to one of the storage tanks or to a tanker truck or a vacuum truck. Waste is then transported to Tank 11, 12 or the wastewater pre-treatment plant.

Request for variance from secondary containment requirements

Silos 1, 2, and 3 are designed for and limited to storage of granular or dusty materials, typically containing less than 5% moisture. Materials placed into the silos are typically inorganically contaminated dusts including hazardous waste. Other products used in the stabilzation process are also stored in the silos including, but not limited to, cement kiln flue dust, lime kiln flue dust, powdered silicates and fly ash.

Silos 1, 2, and 3 are elevated approximately 10 feet above their concrete footings and the concrete floor of the plant. A canopy covers the silos and prevents precipitation from falling on the concrete plant floor. The concrete floor has been constructed with PVC waterstops in all joints and is exceptionally strong, able to withstand pressures in excess of 4000 psi. The silos and all ancillary systems are formally inspected each day the plant is operated. In addition, constant activity around the silos provides for continuous visual inspection of the area. Any detected leak or spill would be reported immediately, allowing for rapid correction of the problem, typically in less than 24 hours. The tanks are also tested once per year to determine shell thickness, providing the opportunity for preventive maintenance if deterioration of the tank integrity is detected.

If a leak or spill of the solid material were to occur, it would fall down onto the concrete plant floor. In the worst case, the leak would be detected 24 hours later (though immediate detection is much more likely). The spilled material would be vacuumed up and the silo taken out of service for repair. Spilled materials would not migrate away from the area due to their solid nature and a lack of precipitation. The silos are central to the plant preventing any spilled materials from migrating off the paved area to threaten surface or groundwater supplies. In addition to being over 100 feet from the south edge of concrete paving and given that the concrete is sloped south to north, directing all liquids towards the north retaining wall, the entire concrete floor of the plant serves as secondary containment . Dispersion of spilled material is further prevented by the waste holding building to the south, the pugmill room to the east and the retaining walls to the west and north.

The addition of a secondary containment curb would not add to protection already provided by the existing concrete floor, structures and canopy. As such, Michigan Disposal Waste Treatment Plant respectfully requests that a variance be granted according to the provisions of 40 CFR 264.193(g).

6.0 OVERFILL PROTECTION AND PROCEDURES

Tank # 1 - Steel Cylindrical Vertical Tanks

Overfilling Control: High level alarm or equivalent at three-fourth capacity level.

Tank # 2 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm or equivalent at three-fourth capacity level.

Tank # 3 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm or equivalent at three-fourth capacity level.

Tank #6 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm or equivalent at three-forth capacity level.

Tank # 7A - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 7B - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 8A - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 8B - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 9A - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 9B - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 10A - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 10B - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 11 - Steel Rectangular Tank

Overfilling Control: All loading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel. A high level indicator triggers an audible alarm at the 6-inch freeboard level, indicating all loading must stop.

Tank # 12 - Steel Rectangular Tank

Overfilling Control: All loading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel. A high level indicator triggers an audible alarm at the 6-inch freeboard level, indicating all loading must stop.

Tank # 14 - Pug Mill Mixer

Overfilling Control: The pug mill mixer is constantly monitored during processing operations. The unit is a flow-thorough mixing device that is continuously gravity fed and unloaded during processing.

Tank # 15 - Pug Mill Mixer

Overfilling Control: The pug mill mixer is constantly monitored during processing operations. The unit is a flow-thorough mixing device that is continuously gravity fed and unloaded during processing.

Tank # 16 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank #17 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank # 18- Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank #19 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank # 25 - Fiberglass Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank # 27 - Fiberglass Vertical Tank

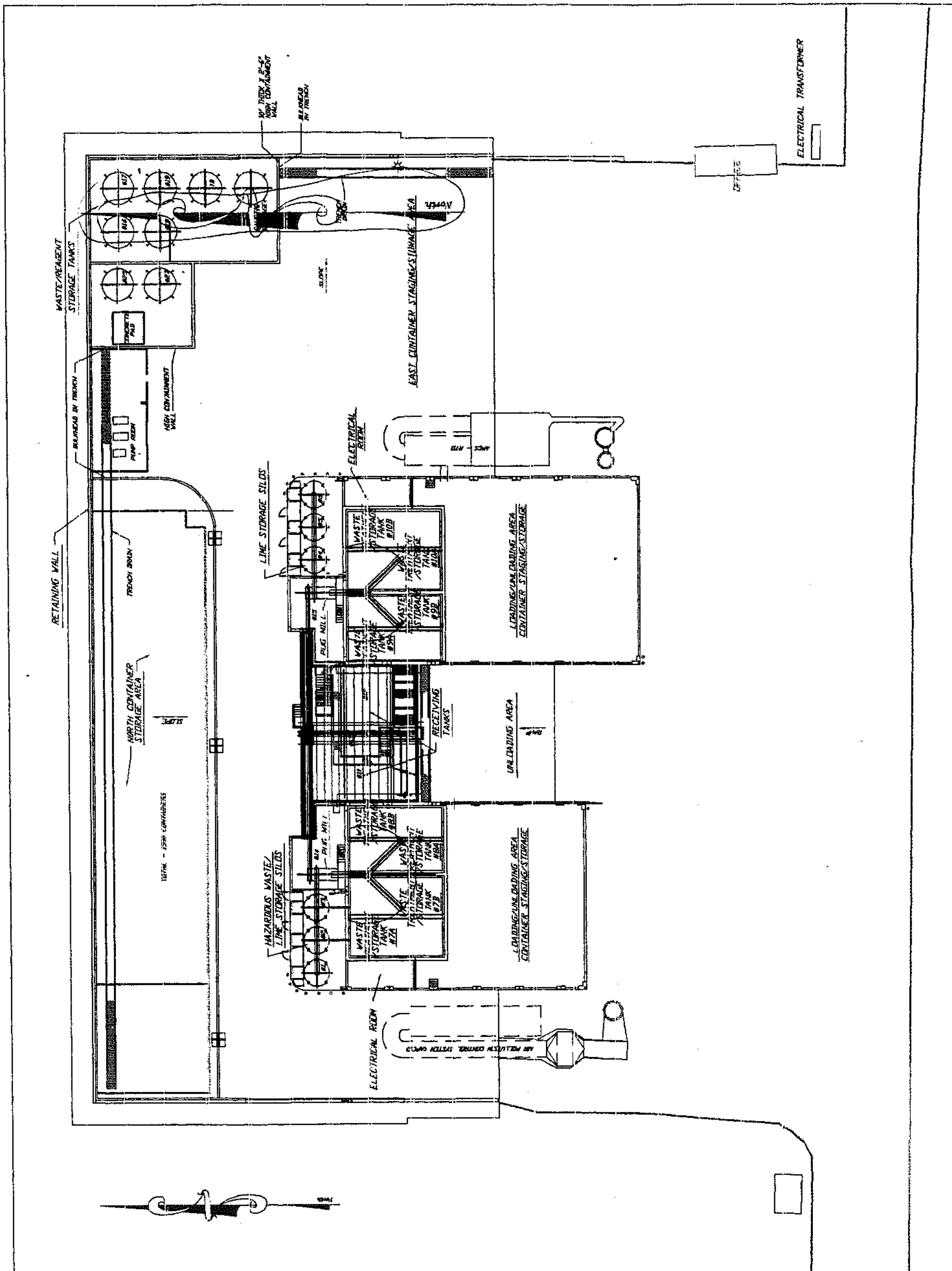
Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

TABLE 1

DISPOSAL HAZARDOUS WASTE TREATMENT PLANT
OPERATIONAL CAPACITY - 1995

STORAGE		
Tank No.	Current Capacity (gal.)	Description
1	20,000	Hazardous Waste/Lime Storage Silo
2	20,000	Hazardous Waste/Lime Storage Silo
3	20,000	Hazardous Waste/Lime Storage Silo
7A	53,950	Storage in Waste Treatment Tank
7B	53,950	Storage in Waste Treatment Tank
8A	43,520	Storage in Waste Treatment Tank
8B	43,520	Storage in Waste Treatment Tank
9A	43,520	Storage in Waste Treatment Tank
9B	43,520	Storage in Waste Treatment Tank
10A	53,950	Storage in Waste Treatment Tank
10B	53,950	Storage in Waste Treatment Tank
11	40,000	Sludge Receiving Tank
12	40,000	Sludge Receiving Tank
16	20,000	Waste/Reagent Storage Tank
17	20,000	Waste/Reagent Storage Tank
18	20,000	Waste/Reagent Storage Tank
19	20,000	Waste/Reagent Storage Tank
25	20,000	Waste/Reagent Storage Tank
27	20,000	Waste/Reagent Storage Tank
Total Storage in Tanks (gal.)	649,880	
MDEQ Container Storage Capacity (gal.)	82,500	North, East & Plant Bays
USEPA Interim Status Carbamate		
Container Storage Capacity	181,800	Southeast Container Storage Area

TREATMENT		
	Tons Per Hour	Description
TOTAL TREATMENT CAPACITY (gal.)	100	Treatment throughput at 24 hours
		per day



THE ENVIRONMENTAL QUALITY COMPANY	LOCATION: MDWTP		TITLE: FACILITY DRAWING
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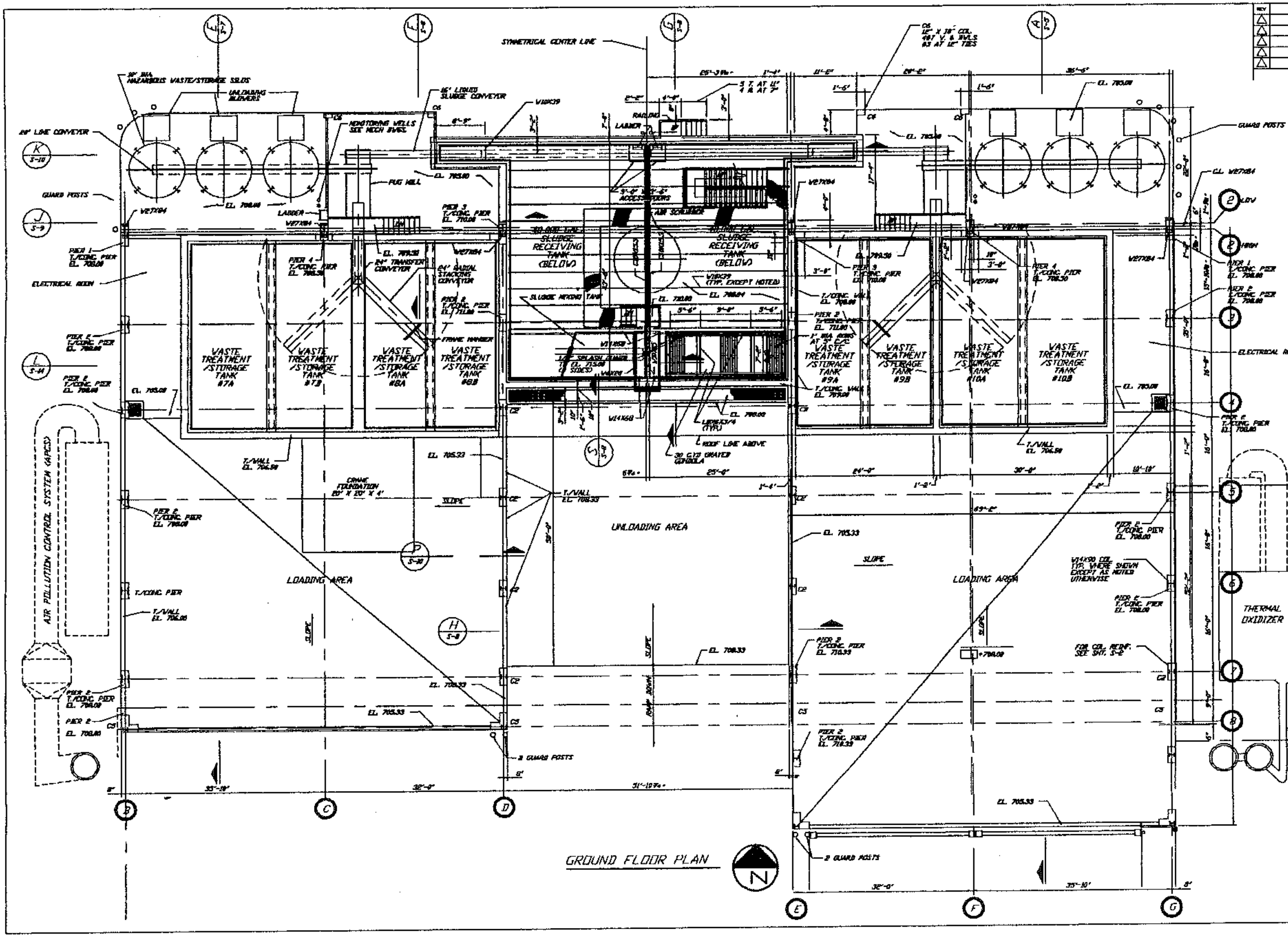
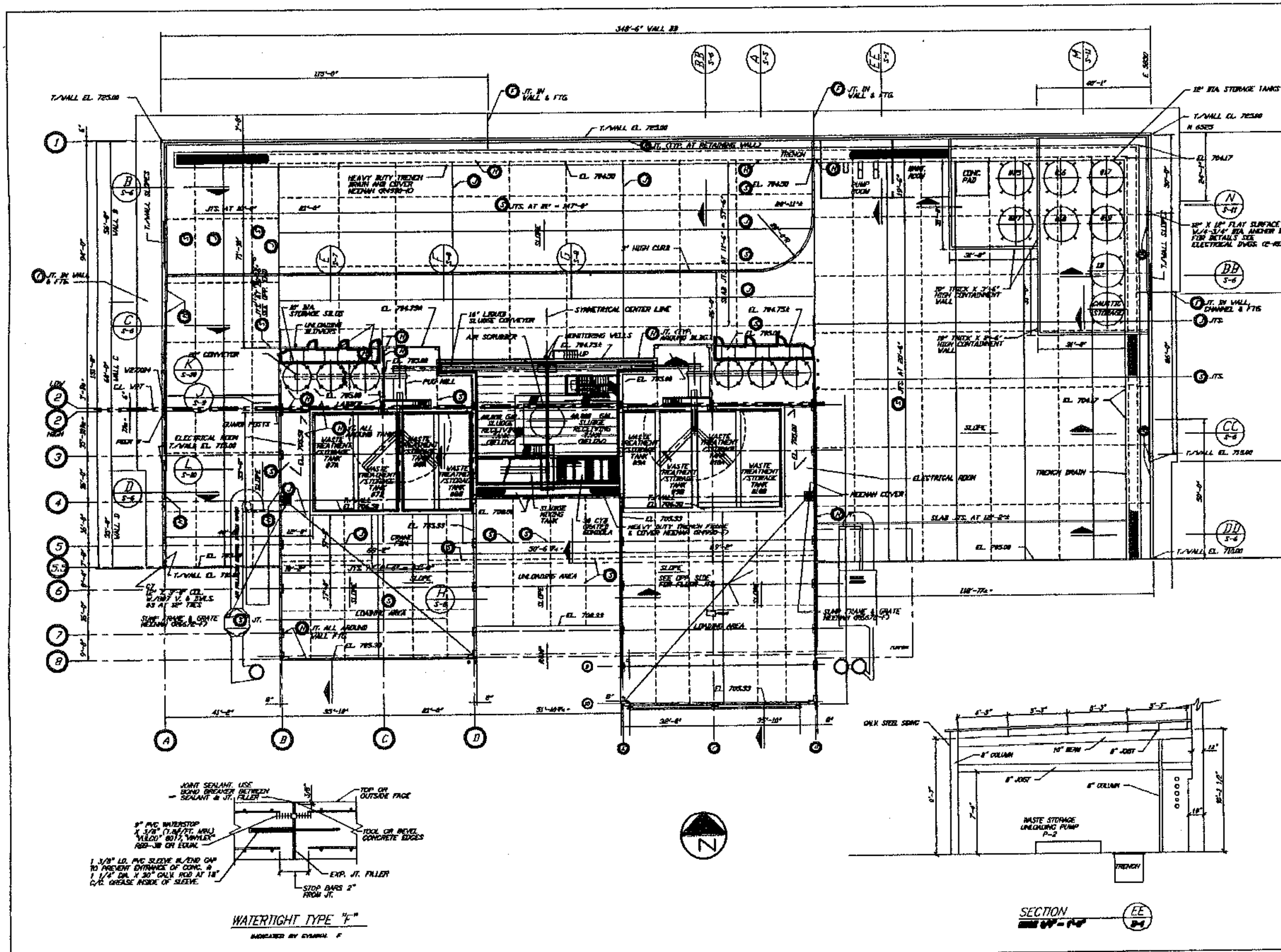


STRUCTURAL

GROUND FLOOR PLAN

S-3



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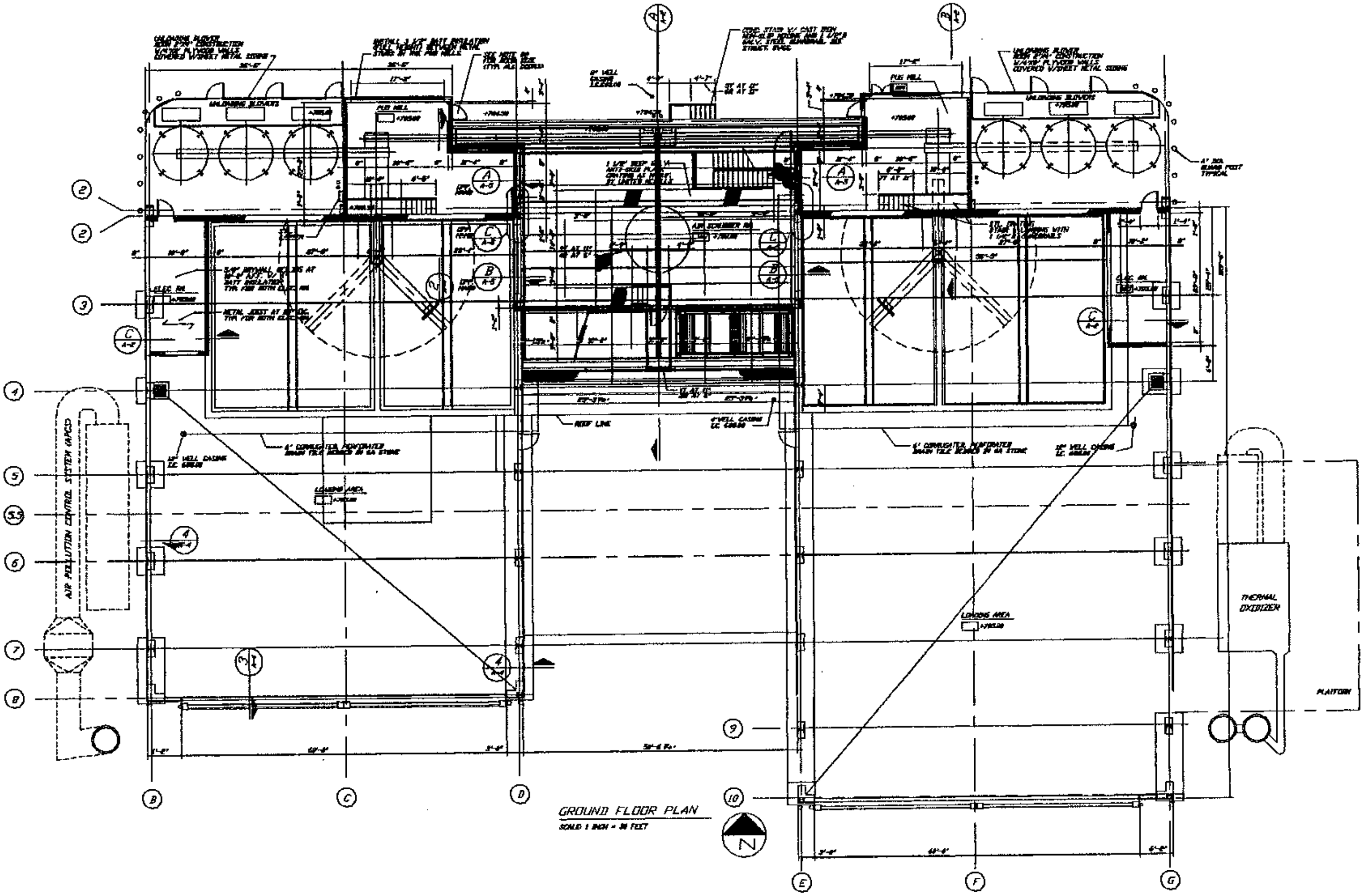
3131 South State Street
Ann Arbor MI 48108

DESIGNED S.JONES	CHECKED J.BAKER
SCALE 1"=30'	CADD DATE [illegible]

EQ – THE ENVIRONMENTAL QUALITY COMPANY
MICHIGAN DISPOSAL WASTE TREATMENT PLANT

STRUCTURAL
OVERALL
PLAN

S-1



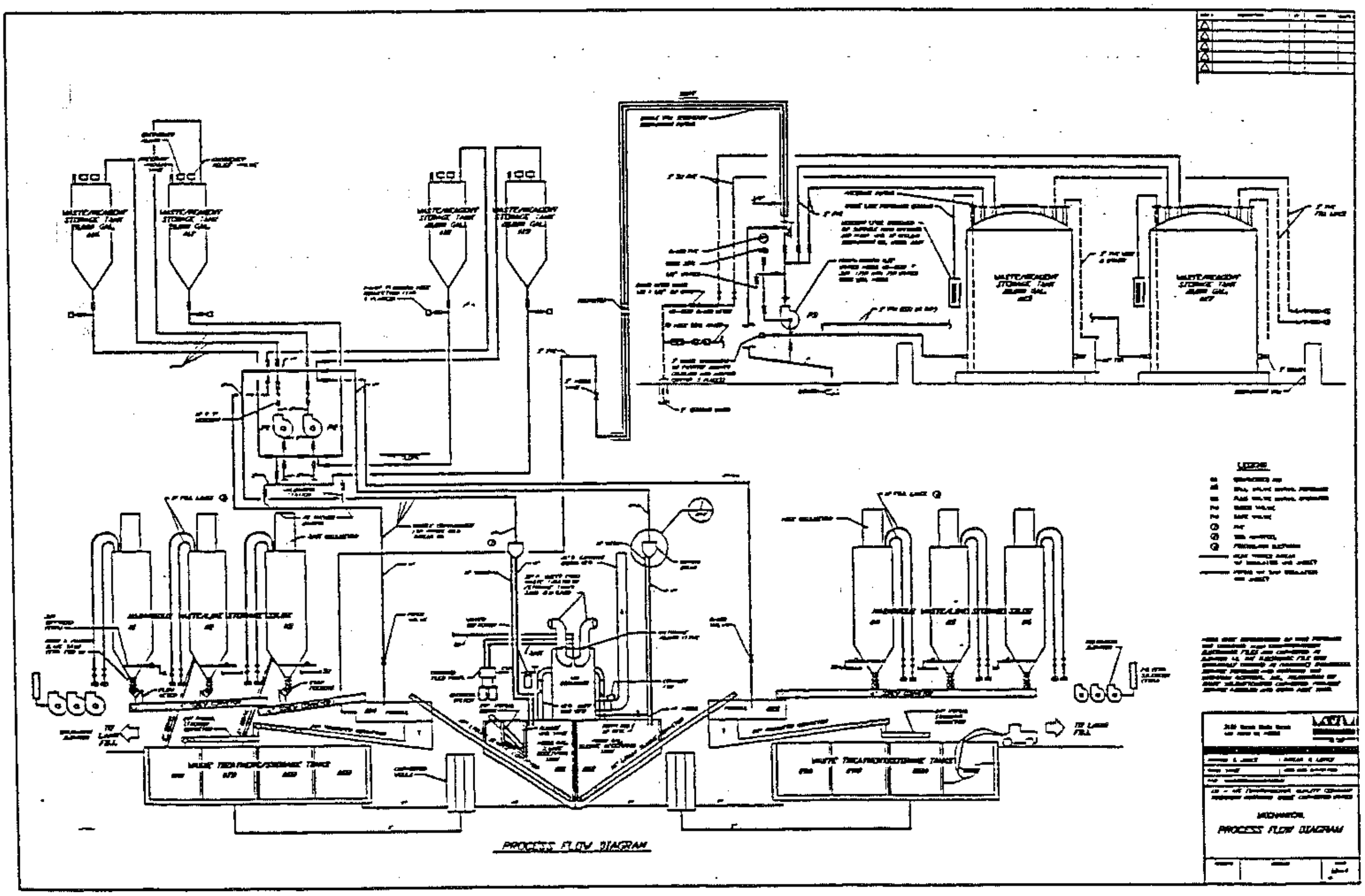
GROUND FLOOR PLAN

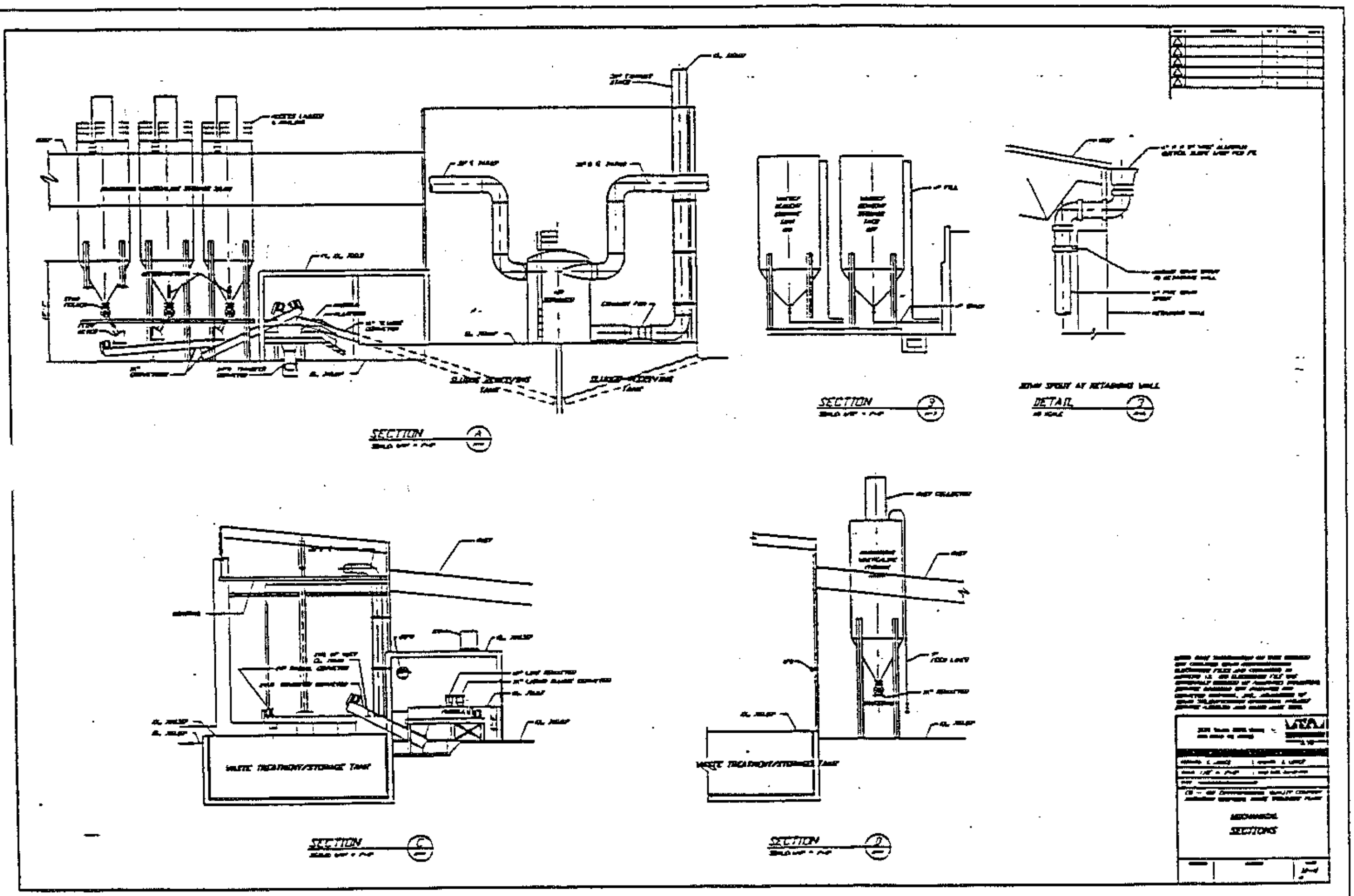
LEGEND

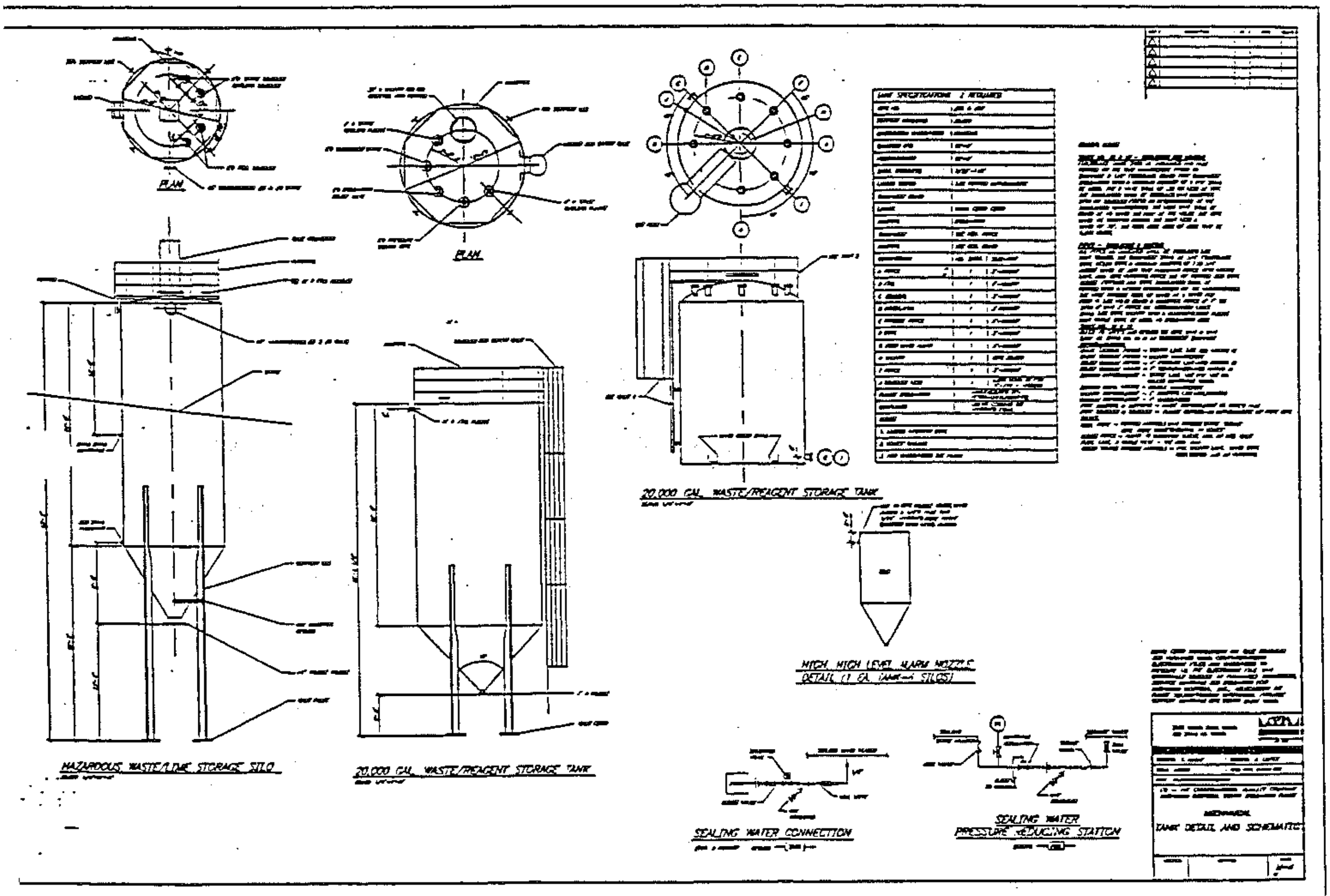
8" CONC. BLOCK W/ INSULATED BLOCK INSERTS

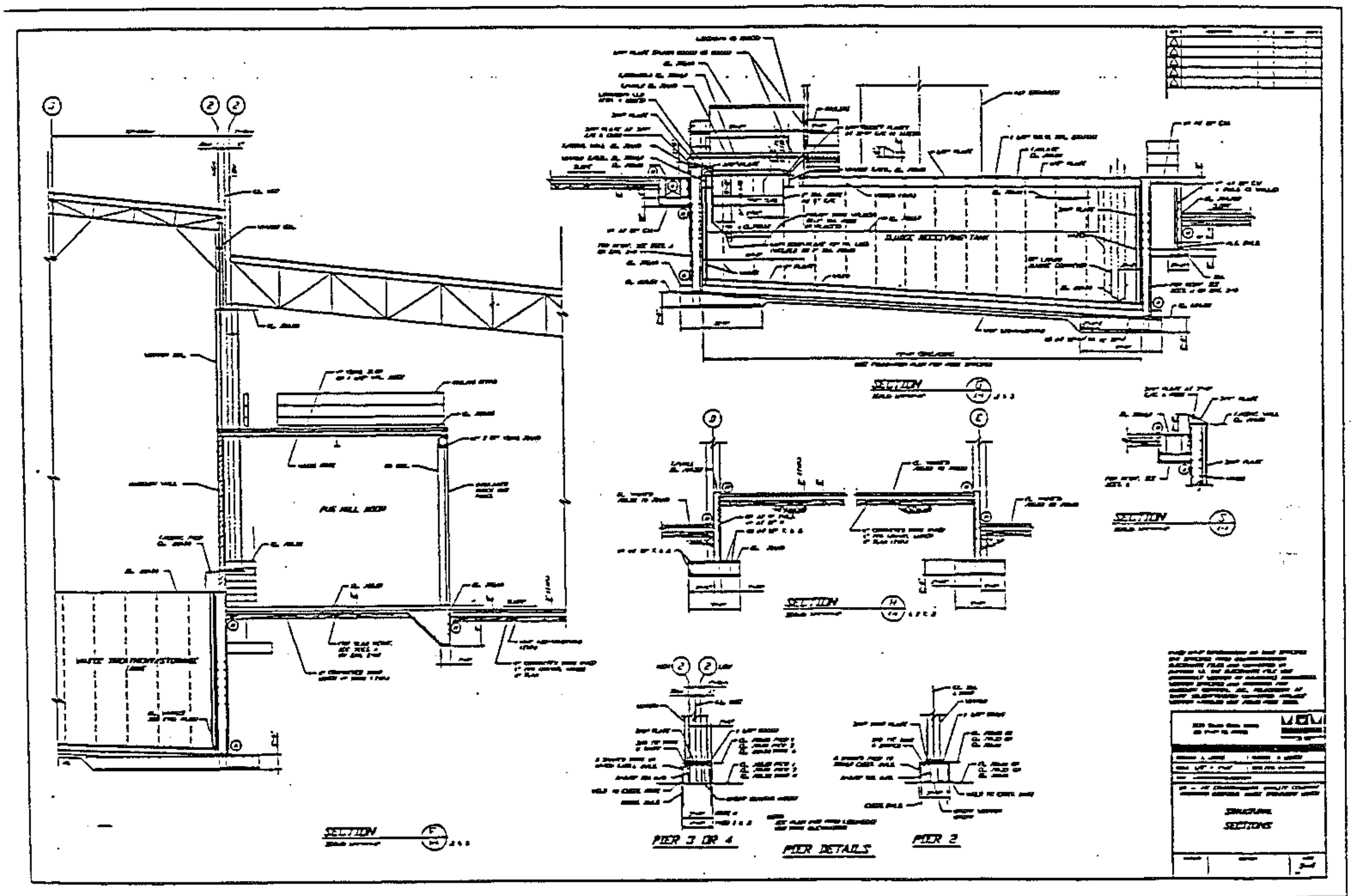
ARCHITECTURAL
Ground Floor Plan

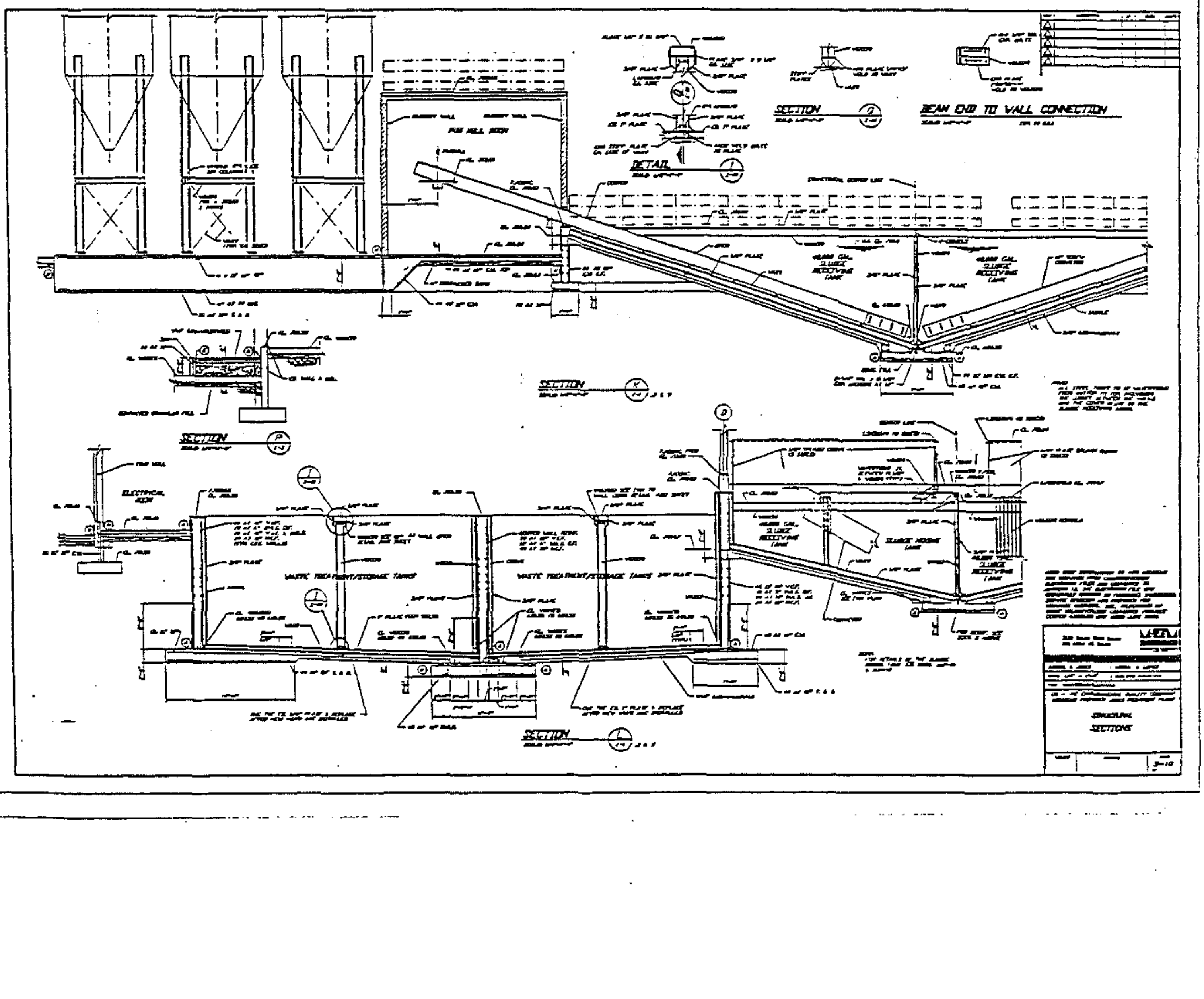
Sheet A-1


WASTE/REAGENT STORAGE TANK
TO LAND FILL
TO LAND FILL
MECHANICAL
PROCESS FLOW DIAGRAM
PROCESS FLOW DIAGRAM

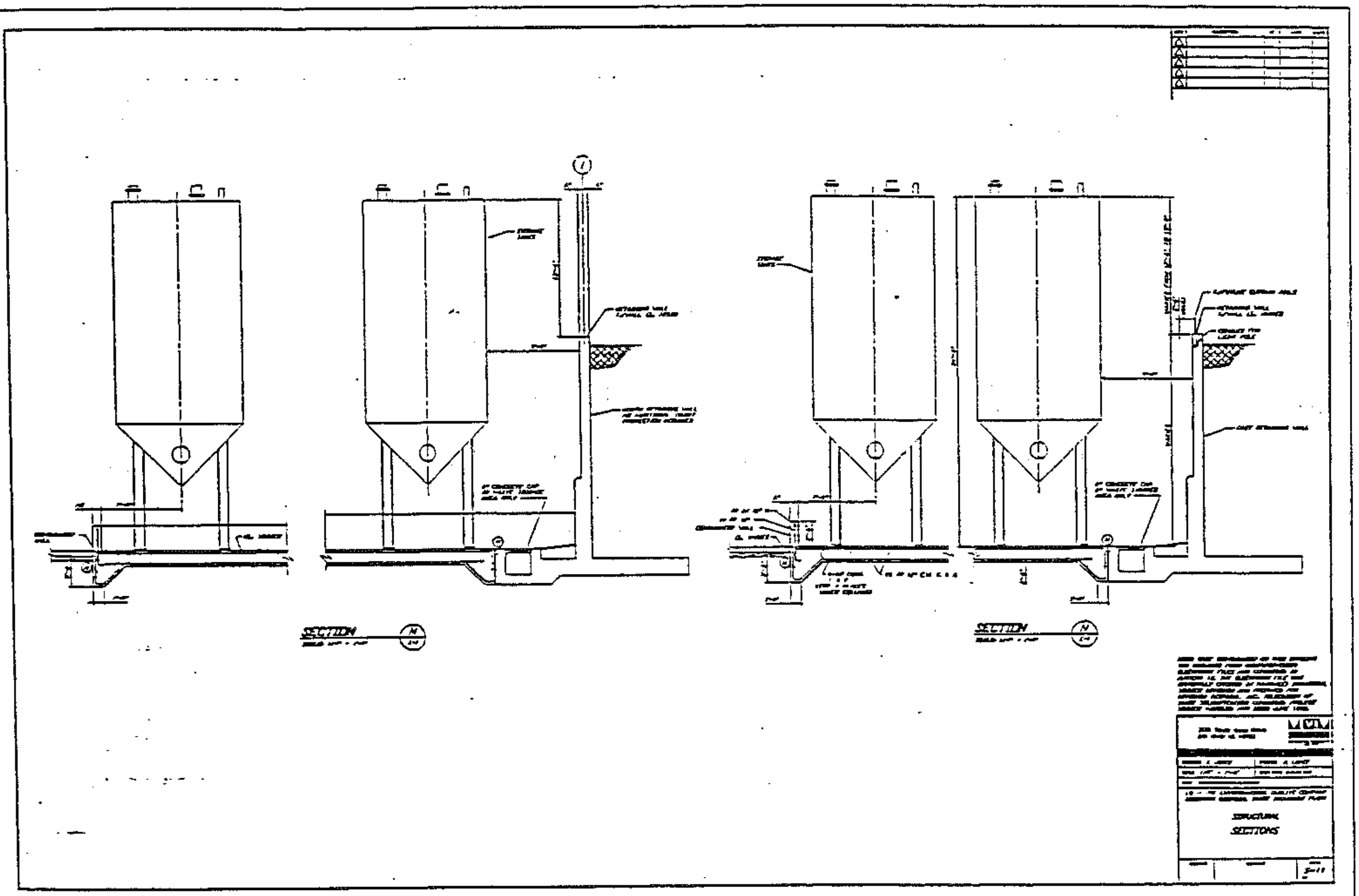

SECTION A
SECTION B
DETAIL
SECTION C
WASTE TREATMENT/STORAGE TANK
SECTION D
WASTE TREATMENT/STORAGE TANK
MECHANICAL
SECTIONS


PLAN
PLAN
HAZARDOUS WASTE/LIME STORAGE SILO
20,000 GAL. WASTE/REAGENT STORAGE TANK
20,000 GAL. WASTE/REAGENT STORAGE TANK
TANK SPECIFICATIONS 2 REQUIRED
HIGH, HIGH LEVEL ALARM NOZZLE DETAIL (1 EA. TANK—& SILOS)
SEALING WATER CONNECTION
SEALING WATER PRESSURE REDUCING STATION
MECHANICAL
TANK DETAIL AND SCHEMATIC


SECTION
SECTION
SECTION
SECTION
SECTION
PIER 3 OR 4
PIER DETAILS
PIER 2
STRUCTURAL
SECTIONS



SECTION
BEAM END TO WALL CONNECTION
DETAIL
SECTION
SECTION
ELECTRICAL ROOM
WASTE TREATMENT/STORAGE TANKS
WASTE TREATMENT/STORAGE TANKS
SLUDGE HOLDING TANK
SECTION
STRUCTURAL SECTIONS


SECTION
SECTION
STRUCTURAL
SECTIONS

ATTACHMENT 11

TREATMENT PROCEDURES

Tank #17 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank # 18- Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank #19 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank # 25 - Fiberglass Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank # 27 - Fiberglass Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

PART II: TREATMENT PROCEDURES

1.0 INTRODUCTION

The Michigan Disposal Waste Treatment Plant treats and stores hazardous and non-hazardous liquids and solids. Wastes may be fed through a screw conveyor from the storage tanks to pugmills at the east or west ends of the facility or may be placed directly into the waste treatment tanks, and mixed with modifiers or deactivation, neutralization, chemical oxidation, chemical reduction, or stabilization reagents, as required for the specific wastes being treated. The east side of the plant is equipped with a baghouse, regenerative thermal oxidizer, and an acid scrubber; and the west side is equipped with a baghouse and activated carbon for properly removing particulates, odors and volatile organics from air emissions. The air pollution control equipment creates approximately 20,000 CFM air exchange throughout the east side of the plant and approximately 100,000 CFM air exchange throughout the west side of the plant.

The facility license has specific restrictions regarding the waste types and concentrations of the following waste contaminants **NOT ACCEPTABLE** for treatment:

- Volatile organic content (VOC) content greater than (>) 2.0-percent by weight for hazardous waste and >20.0-percent by weight for non-hazardous waste;
- Flammable wastes (less than (<) 90-degrees Fahrenheit (°F) flashpoint);
- Reactive wastes as defined by R299.9212(3); and
- Polychlorinated biphenyls (PCBs) >50 parts per million (ppm).
-

2.0 WASTE TREATMENT PROCESSES

The Michigan Disposal Waste Treatment Plant treats wastes that require treatment to comply with the Land Disposal Restriction (LDR) treatment standards under 40 Code of Federal Regulations (CFR) Part 268 through chemical stabilization using a pozzolanic-type process incorporating cement kiln dust (CKD), lime, and other selective reagents and through chemical oxidation using various oxidants. A treatment train (a stepwise progression of treatments using different reagents) is sometimes required to treat the different constituents of concern. The different treatment steps may include neutralization, deactivation, chemical oxidation, and/or chemical reduction using modifiers and reagents such as lime or oxidizing or reducing agents to destroy or convert selected waste constituents into a physical or chemical form that is less soluble, less hazardous and/or more suitable for subsequent stabilization.

Wastes requiring neutralization, deactivation, chemical oxidation, chemical reduction, and/or stabilization are treated in batch operations. Each batch may contain multiple United States Environmental Protection Agency (USEPA) hazardous waste numbers and treatment standards.

Liquid wastes or liquid reagents are stored in six 20,000-gallon vertical storage tanks (T-16 through T-19, T-25 and T-27), and two 40,000-gallon sludge feed tanks (T-11 and T-12).

Electric arc furnace dust (K061) waste or other dry, flowable bulk solid or hazardous wastes may be stored in three 100-cubic yard (cy) silos (T-1, T-2,T-3). Lime kiln flue dust, cement kiln flue dust, and lime are also used for stabilization and may be stored in all six silos (T-1 through T-6). The dusts are fed from the silos to the closest pugmill and treatment tank at a controlled rate to effect treatment of liquid and solid wastes.

Wastes are stored and treated in the pugmills (Tanks 14 and 15) and in Tanks 7a, 7b, 8a, 8b, 9a, 9b, 10a, 10b, 11 and 12. Treatment consists of blending the waste in sludge feed tanks (Tanks 11 and 12) prior to treatment in the pugmills or mixing and treatment directly in the open-top storage/treatment tanks. Other reagents, such as ferrous sulfate, may be added directly to the tanks in bag, drum, or bulk quantities. When required, the tanks will be decontaminated if the use of a specific tank is changed from storage/treatment of listed wastes to characteristic wastes in order to allow operational flexibility to accommodate the normal variation in scheduling waste receipts from Michigan Disposal Waste Treatment Plant's customers. The tanks will be decontaminated by performing a water flush/rinse of the specific tank. The tank rinsate will be then treated/stabilized in a batch with LDR treatment standards which are compatible with the last batch in the tank.

2.1 Chemical Stabilization Reaction

Michigan Disposal Waste Treatment Plant utilizes a waste treatment technique commonly referred to as pozzolanic stabilization. This technique relies on materials rich in stabilization and solidification agents to provide a solid stabilized mass when mixed with wastes. The most commonly utilized materials in Michigan Disposal Waste Treatment Plant's process are soluble silicates, lime, CKD, and fly ash. All compounds contain either soluble silicates, 10-percent to 30-percent calcium oxide, or a combination of the two, and effectively stabilize waste in a slightly exothermic reaction.

The materials utilized in Michigan Disposal Waste Treatment Plant's process follow a reaction sequence very similar to that of the hydration of cement. Upon mixture of the stabilization agents and waste, a hydrated calcium silicate gel is formed. The mix ratio favoring formation of this gel is determined in the laboratory but is adjusted somewhat subjectively during treatment, by observing and modifying the proper waste to stabilization agent mixture as treatment takes place. When a product mix similar to stiff concrete is established, the waste will be allowed to stabilize and then tested prior to landfill disposal. The gel-like mixture hardens as silicate crystals grow in the alkaline matrix of waste and stabilization agents. The silicate crystals grow from individual particles in the matrix, including the waste itself. In the pozzolanic process, the presence of fine grained inert solid particles along with an exceptionally alkaline medium may prevent the formation of a monolithic concrete-like solid, instead forming a material having a soil-like consistency. As with concrete, the reaction continues for several days, gradually strengthening the stabilized product and continually reducing the concentration of leachable metals and other hazardous constituents.

2.2 Chemical Oxidation Reaction

Hazardous wastes containing organic constituents above the LDR levels are chemically oxidized at the MDWTP. The chemical oxidation process is described below and detailed in Figure 2 of the Waste Analysis Plan. Chemical oxidation is also discussed as one of the Best Demonstrated Available Technologies (BDAT) for managing organic contaminated waste in 40 CFR 268.42 and Appendix VI.

Oxidation-reduction reactions are one of the basic chemical reactions discussed in all beginning chemistry texts. Oxidation is the process in which an atom or compound acquires electrons (the oxidizing agent or oxidant) and reduction is the process in which an atom or compound loses electrons (the reducing agent or reductant). The two processes always occur simultaneously with one compound acting as the oxidant and the other the reductant.

For the treatment of hazardous organic waste, MDWTP typically uses an 18% sodium hypochlorite solution as the oxidizing agent. While sodium hypochlorite is the predominant oxidant used by MDWTP, MDWTP may occasionally use other oxidizing agents, including but not limited to hydrogen peroxide and potassium permanganate. In the oxidation process, electrons are stripped from organic molecules to the extent that carbon to carbon bonds are broken and carbon dioxide, sodium chloride and water are formed. The organic compounds are destroyed in this mildly exothermic reaction. MDWTP allows approximately two hours for the chemical oxidation reaction to run to completion. During this time, the slurried batch is mixed with an excavator.

The amount of oxidant used in the treatment is determined by the Treatment Chemist and is a function of 1) the concentration of all organics in the waste, 2) the treatability study run on the waste (see paragraph 3 of this section for a description of treatability studies), 3) the Treatment Chemist's previous experience with the waste, and 4) the quantity required to create a wastewater slurry. Oxidants are primarily routed to the tanks through the pugmills. Batches treated by chemical oxidation are solidified before landfilling using the stabilization process described above and must also be determined to pass the LDR standards as described in the Waste Analysis Plan.

MDWTP has worked closely with the Wayne County Department of Public Health, Air Pollution Control Division, to permit and install new high capacity, state of the art air pollution control equipment that effectively and efficiently captures particulate and organic emissions generated by the waste treatment processes. The east side air pollution control equipment consists of a baghouse, regenerative thermal oxidizer, and an acid scrubber. And the west side air pollution control equipment consists of a baghouse and activated carbon. The air pollution control equipment creates approximately 20,000 CFM air exchange throughout the east side of the plant and approximately 100,00 CFM air exchange throughout the west side of the plant

3.0 TREATABILITY TESTING

Michigan Disposal Waste Treatment Plant conducts treatability testing to ensure that wastes can be treated to the required LDR levels prior to acceptance of the waste. A treatability study may be triggered during the pre-approval process (described in the WAP) for any of the following reasons:

- The waste type has not been treated at Michigan Disposal Waste Treatment Plant before
- The waste is generated by a process not treated at Michigan Disposal Waste Treatment Plant before
- The waste has levels of constituents outside the range normally treated at Michigan Disposal Waste Treatment Plant before
- The waste codes or constituents have not been treated at Michigan Disposal Waste Treatment Plant before

The guidelines for determining if a treatability test is needed are further detailed in Table 1, Treatability Study Guidelines. The Treatability Study Guidelines table is provided to assist in guiding the chemists and technicians in determining if a treatability test is needed.

The treatability test involves simply mixing waste and treatment reagents in a ratio developed by the laboratory. Measured volumes of the waste are mixed with the treatment agents. Mixing is designed to emulate retention time in the pugmill mixer and mixing time per unit of waste in the treatment tanks. After mixing, a sample of the waste is collected for analysis for the constituents of concern. A treatability report is then prepared showing the after treatment concentrations of the constituents of concern. This report is placed into the waste stream technical approval file prior to acceptance of the waste.

To successfully treat certain waste streams, a modification of the standard process may be required. Modified treatments are first verified in the laboratory, then implemented at the plant once the waste is received. Modified treatments are considered Confidential Business Information. It is important to note that all treatments are verified through actual post treatment analysis of treatment residue, prior to disposal of the waste.

4.0 MIXING, BLENDING, AND COMMINGLING OF WASTES FOR TREATMENT

As part of the treatment and storage process, various individual waste streams are mixed, blended, and/or commingled. The blending operations are conducted by plant personnel under the direction and careful supervision of Michigan Disposal Waste Treatment Plant's laboratory and treatment chemists.

4.1 Authorization to Mix or Blend

Prior to approving a waste stream for acceptance, a series of compatibility tests are conducted, insuring the waste is acceptable and compatible with Michigan Disposal Waste Treatment Plant's tank systems and other accepted waste streams. Upon receipt of an approved waste, the treatment chemist designates the receiving storage and treatment tank and treatment steps. A sample of the waste is also tested for compatibility with other wastes in storage according to the procedures presented in the Waste Analysis Plan (WAP). The laboratory then approves the shipment for acceptance into the appropriate storage or treatment tank.

4.2 Plant Operations

Once received, the waste is directed to the plant for unloading into the designated storage/treatment tank. The batch ticket, prepared by the treatment chemist, indicating the tank to be used, is presented to plant personnel prior to unloading. After confirming the waste's identity, an operations person directs the tanker or dump trailer to the designated tank and the truck is unloaded. Drummed wastes will be similarly assigned and unloaded into the designated tanks as directed by the plant supervisor.

Wastes already present in the tank may be thoroughly mixed by recirculating or physically mixing the contents. Tank-to-tank mixing may also be conducted, but only at the direction of the laboratory after the compatibility checks, described above and in the WAP, have been completed.

5.0 TREATMENT METHODS

5.1 Pugmill Treatment

Pugmill mixers are the treatment units used in the Michigan Disposal Waste Treatment Plant process for liquids and high water content waste slurries and sludges. Liquid sludges and slurried wastes are pumped from the waste storage tanks to the pugmill. Stabilization agents and oxidants are conveyed from the storage silos and storage tanks, respectively, and fed into the pugmill at the same point as the liquid waste(s). After mixing in the pugmills, the waste is discharged to a stacking conveyor for distribution to the waste holding tanks. Upon completion of treatment of all materials in the treatment tank, the waste is sampled and analyzed to demonstrate and document effective treatment.

5.1.1 Treatment in West Pugmill; Tank 14

The west pugmill is used for the treatment of non-hazardous wastes and hazardous waste identified in 40 CFR Part 261, Subparts C and D, those wastes identified in the facility Part A Application, and the WAP.

Standard treatment involves mixing the waste with the stabilization agent(s) in a ratio determined by the laboratory. This is accomplished by setting the feed rates on the rotary vane feeders at the base of silos 1, 2, or 3 in proportion to the liquid feed rate on the screw conveyor or pump coming from Tanks 11, 16, 17, 18, or 19.

After treatment in the pugmill mixer, treatment residues are discharged using conveyors to Tank Nos. 7a, 7b, 8a, or 8b.

5.1.2 Treatment in East Pugmill; Tank 15

The east pugmill is also used for the treatment of non-hazardous wastes and hazardous wastes described in 40 CFR Part 261, Subpart C and D, and those wastes identified in the facility Part A Application and the WAP.

Standard treatment involves mixing stabilization agents and wastes in a ratio determined by the laboratory. This is accomplished by setting the feed rates on the rotary vane feeders at the base of silos 4, 5, or 6 in proportion to the liquid feed rate on the screw conveyor or pugs coming from Tanks 12, 16, 17, 18, 19, 25, or 27.

After treatment in the pugmill mixer, wastes are discharged using conveyors to Tanks Nos. 9a, 9b, 10a, or 10b.

5.2 In-Tank Treatment

For waste streams not treated in a pugmill mixer, due to physical constraints such as particle size, physical state, or available space the material will be treated in the treatment tanks. The process is similar to that described above, except that mechanical mixing of waste and treatment agents is performed in the treatment tank using the bucket of an excavator. The treatment agents may be added to the tank from pugmill mixer or placed directly into the tank. The excavator is used to thoroughly mix the materials into a homogenous mass. Following stabilization, the treated waste solidifies as described above. Also, as described below, the effectiveness of the treatment is confirmed through post treatment analysis of the residue as appropriate.

As with pugmill treatment, Tanks 7a, 7b, 8a, 8b, 9a, 9b, 10a, and 10b receive non-hazardous wastes and hazardous wastes described in 40 CFR Part 261 Subpart C and D and those wastes identified in the facility Part A Application and the WAP.

6.0 WASTE-SPECIFIC TREATMENT

The waste treatment processes utilized by Michigan Disposal Waste Treatment Plant, described in Section 2.0, are effective for a broad range of wastes containing inorganic and organic constituents. The treatment operations may combine several wastes or shipments from various generators to facilitate operational efficiency and utilization of available processing capacity. Batch treatment of multiple wastes and/or shipments will be based on chemical compatibility, USEPA hazardous waste numbers, and treatment requirements.

A general treatment process logic for the Michigan Disposal Waste Treatment Plant regarding target constituents, typical waste codes, "treatment trains" and post treatment parameters is provided in Table 1 of the WAP. Descriptions of the treatment technologies utilized for various applicable waste types and basic operating parameters and principles are presented in Figures 1 through 4 in the WAP.

Details of specific treatment recipes are considered Confidential Business Information and will be provided to the Michigan Department of Environmental Quality as a separate document.

6.1 Characteristic Wastes

Characteristic wastes which are treated separately from listed wastes may be disposed of in a permitted solid waste/Subtitle D landfill if it is determined that, after treatment, the LDR treatment standards have been achieved and the treatment residue no longer exhibits the characteristics of hazardous waste.

6.2 Hazardous Debris

Hazardous debris (>60mm) must be treated prior to land disposal, unless the debris is no longer contaminated with hazardous waste or the debris is treated to the waste-specific treatment standards specified in 40 CFR 268.45 using technologies identified in Table 1 of 268.45. MDWTP anticipates receiving hazardous debris that may be contaminated with any code or codes identified in Appendix A in Section a or in the WAP.

Characteristic ignitable or corrosive hazardous debris will be deactivated at Michigan Disposal Waste Treatment Plant during the microencapsulation process prior to landfill disposal. The treatment standards identified in Table 1 of 268.45 must be achieved for each type of debris contained in a mixture of debris types. If immobilization, such as microencapsulation or macroencapsulation, is used in a treatment train, it will be the last treatment technology applied. This requirement also will apply to debris contaminated with two or more contaminants subject to treatment. Hazardous debris will be treated for each contaminant, subject to treatment as specified by 268.45(b) for toxicity characteristic debris and debris contaminated with listed wastes. CN reactive debris will not be accepted by Michigan Disposal Waste Treatment Plant.

Michigan Disposal Waste Treatment Plant uses the micro and macroencapsulation immobilization technologies listed in Table 1 of 268.45 to achieve the performance standard of reduced leachability of the hazardous contaminants, in the case of microencapsulation, and completely encapsulates debris with a material(s) that is resistant to degradation by the debris and its contaminants and the material into which it may come into contact after placement (leachate, other waste, microbes), in the case of macroencapsulation.

Treated hazardous debris will be managed as specified in 268.45(c). When treating debris in accordance with the alternative treatment standards for debris, the MDWTP uses only the immobilization technologies of micro and macroencapsulation. Hazardous debris contaminated with listed or characteristic waste that is treated by micro or macroencapsulation at the MDWTP are properly disposed in licensed Subtitle C landfills and are accompanied by an LDR notification and certification form in accordance with 40 CFR 268. 7(b)(5). Treatment of debris using one of the technology specific immobilization treatment standards at 268.45, Table 1, constitutes compliance with the land disposal restriction standards and no testing after treatment is required prior to disposal.

Description Of The Macroencapsulation Unit

The macroencapsulation unit is made of approximately one inch thick polyethylene using an injection molding process to create a rigid, one-piece "tub" that fits within a roll-off or is self supporting. The macroencapsulation units can be manufactured in any size but are most commonly manufactured to fit within a 20 yard roll-off. To seal the unit, a sheet of the same polyethylene, in approximately the same thickness, is screwed onto the lip of the tub using approximately 120 self-tapping screws. Screwing the down the lid provides a water-tight seal that may be augmented with caulking or glue.

Debris placed within the macroencapsulation units are jacketed within the polyethylene in an inert, extraordinarily durable, water tight material that will substantially reduce surface exposure to potential leaching media. The inert polyethylene material will completely encapsulate the debris and is resistant to degradation by the debris and debris contaminants managed by Michigan Disposal and the wastes, leachate, or microbes with which it will contact once landfilled in a licensed hazardous waste cell.

Description of The Macroencapsulation Process

Macroencapsulation will be performed as follows:

1) Debris will be placed into one of the treatment tanks (tanks 7 - 10) or directly into a macroencapsulation unit.

2) In the treatment tank, the debris is mixed, as needed, with an inert, finely divided material to fill the void spaces when encapsulated and to provide cushioning material. The inert filler includes cement kiln dust, sand, solidified non-hazardous waste, waste treated to the land disposal restriction standards, or other non-biodegradable sorbent or fixation media. Fill material is also added directly to the macroencapsulation units.

3) The debris is lifted from the tank with a backhoe and placed into a macroencapsulation unit or is placed directly into the unit. As with dump trailers and dump trucks currently loaded with treated waste within the treatment plant, the macroencapsulation units is also loaded within the plant.

4) The lid is screwed into place on the macroencapsulation unit.

5) Macroencapsulation approvals will specify "special burial" in the licensed hazardous waste cell. The special burial designation will ensure that the macroencapsulation units are carefully placed in the cell to ensure that they are not ruptured during placement or after placement.

Capacity

Macroencapsulation treatment capacity is a function of available tank space. Macroencapsulation of hazardous debris will be counted against the permitted treatment capacity of the MDWTP on a daily basis as are all other wastes treated in the tanks. All permitted tank treatment methods, including micro and macroencapsulation, are performed within the state license and federal permit capacity limitations as stipulated in Section A-1 of this application.

7.0 POST TREATMENT ANALYSIS

The treated batches will be held in the treatment/storage tanks, covered roll-off boxes, or other similar bulk containers for testing prior to disposal. The Resource Conservation and Recovery Act (RCRA) empty drums are placed into a roll-off box or other similar containers for subsequent disposal or recycling.

Treatment residues will be sampled and analyzed (with the exception of debris), following the procedures in the facility WAP, to determine whether the batch meets the applicable LDR treatment standards defined in 40 CFR 268.

Treatment residues, resulting from the treatment operations that exceed the applicable LDR treatment standards, will be retreated on-site until the LDR standards are achieved or, as an option, sent off-site for further treatment to meet the LDR standards. Post treatment analyses, which may include the TCLP, paint filter test, and, where applicable, specific constituent (i.e., supplementary) analyses are performed on each treatment batch of hazardous waste prior to landfill disposal. This post treatment analysis is used to demonstrate that the treatment residues meet the LDR standards.

The Michigan Disposal Waste Treatment Plant stabilization process will also be utilized to treat wastes not subject to the LDRs, to solidify free liquids and render the waste more suitable for handling and landfill disposal. The post treatment analyses will include a visual observation, to ensure no free liquid is present. A paint filter test may be performed on selected loads when required by visual inspection.

8.0 TREATMENT RESIDUE DISPOSAL

After the post treatment analysis is completed, the data is reviewed to confirm successful treatment of the waste. The treatment residues will be disposed of as follows:

- Disposal of Non-Hazardous Treatment Residues

  Treatment residues of characteristic hazardous wastes that no longer exhibit the characteristics of hazardous waste based on the post treatment analyses may be transported to and disposal of in a non-hazardous, permitted solid waste/Subtitle D landfill facility; and

- Disposal of Hazardous Waste Treatment Residues

  Treatment residues of listed hazardous wastes, that are determined to meet the applicable LDR treatment standards (40 CFR Part 268.40), will be landfilled in the Wayne Disposal Site #2 Landfill or another permitted RCRA Subtitle C facility.

The applicable LDR notifications, certifications, and analytical documentation will be provided for each waste disposed of in the Wayne Disposal Site #2 Landfill and maintained in the facility operating records. These documents would also be provided, as required, with any shipments to other off-site permitted Treatment, Storage, and Disposal Facilities (TSDFs).

TABLE 1 TREATABILITY STUDY GUIDELINES CHART		
WASTE NUMBER (NO.)	CONSTITUENT(S)/ CONCENTRATION(S)	TREATABILITY STUDY RECOMMENDED
Characteristic Wastes:		
D001		NO(1)
D002		NO(1)
D004-D006	<10,000 ppm metal*	NO
D004-D006	>10,000 ppm metal*	YES
D007	<100,000 ppm trivalent chrome*	NO
D007	>100,000 ppm trivalent chrome*	YES
D007	<10,000 ppm hexavalent chrome*	NO
D007	>10,000 ppm hexavalent chrome*	YES
D008	<50,000 ppm lead*	NO
D008	>50,000 ppm lead*	YES
D009	<100 ppm mercury*	NO
D009	>100 ppm mercury*	YES
D010	<200 ppm selenium*	NO
D010	>200 ppm selenium*	YES
D011	<500 ppm silver*	NO
D011	>500 ppm silver*	YES
001D, 003D	<100,000 ppm copper, zinc*	NO
001D, 003D	>100,000 ppm copper, zinc*	YES
D012-D043	Constituent concentrations > 10x LDR treatment standard	YES
Listed Wastes:		
F-Series Wastes		YES(2)
K-Series Wastes		YES(2)
U-Series Wastes		YES(2)

NOTES:

(1) = If these characteristic wastes also contain Toxicity Characteristic constituents, refer to applicable D004-D043 recommendations.

(2) = Not necessary if the pretreatment soluble metal concentrations are below the applicable LDR treatment standard of concern.

* = Based on the results of the TCLP extraction and analyses.
< = Less than.
> = Greater than.
ppm = parts per million.

ATTACHMENT 12

TANK SPILL AND OVERFLOW PROCEDURES

6.0 OVERFILL PROTECTION AND PROCEDURES

Tank # 1 - Steel Cylindrical Vertical Tanks

Overfilling Control: High level alarm or equivalent at three-fourth capacity level.

Tank # 2 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm or equivalent at three-fourth capacity level.

Tank # 3 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm or equivalent at three-fourth capacity level.

Tank #4 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm or equivalent at three-forth capacity level.

Tank #5 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm or equivalent at three-forth capacity level.

Tank #6 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm or equivalent at three-forth capacity level.

Tank # 7A - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 7B - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 8A - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 8B - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 9A - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 9B - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 10A - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 10B - Steel Rectangular Tank

Overfilling Control: Loading and unloading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Spotter also maintains a written Tank Log (also known as the Batch Ticket) of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the Tank Log is initialed by the spotter to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper mixing within a treatment tank, the operator will cease mixing.

Tank # 11 - Steel Rectangular Tank

Overfilling Control: All loading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel. A high level indicator triggers an audible alarm at the 6-inch freeboard level, indicating all loading must stop.

Tank # 12 - Steel Rectangular Tank

Overfilling Control: All loading operations are constantly monitored by Michigan Disposal Waste Treatment Plant personnel. A high level indicator triggers an audible alarm at the 6-inch freeboard level, indicating all loading must stop.

Tank # 14 - Pug Mill Mixer

Overfilling Control: The pug mill mixer is constantly monitored during processing operations. The unit is a flow-thorough mixing device that is continuously gravity fed and unloaded during processing.

Tank # 15 - Pug Mill Mixer

Overfilling Control: The pug mill mixer is constantly monitored during processing operations. The unit is a flow-thorough mixing device that is continuously gravity fed and unloaded during processing.

Tank # 16 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank #17 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank # 18- Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank #19 - Steel Cylindrical Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank # 25 - Fiberglass Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

Tank # 27 - Fiberglass Vertical Tank

Overfilling Control: High level alarm, equipped with a weight-lite liquid level indicator.

ATTACHMENT 13

GROUNDWATER MONITORING PROGRAM SAMPLING AND ANALYSIS PROGRAM

GROUNDWATER MONITORING

40 CFR 270.14c(5)

AND

MI ACT 451 R611

GeoChem, Inc.

15195 Farmington Rd. ~ Suite 110 ~ Livonia, MI 48154
Phone (734) 261-3175 ~ Fax (734) 261-3575 ~ e-mail geochem@flash.net

June 2, 1999

Ms. Jennifer Baker
Manager, Regulatory Affairs
EQ - The Environmental Quality Company
49350 North I-94 Service Drive
Belleville, Michigan 48111

Re: Wayne Disposal Site #2 Landfill, MID 048 090 633
Changes to Sampling & Analysis Plan

Dear Ms. Baker:

Per your request, I have discussed several changes to the groundwater Sampling & Analysis Plan (SAP) with Ms. Virginia Loselle of MDEQ. These changes are necessary due to the change from Encotec to DLZ for analytical services. This letter documents the results of this discussion. Specifically, two issues were discussed: 1) the change to field filtering from filtering upon delivery to the lab, and 2) a clarification of the analysis of field and trip blanks. Each issue is summarized below.

Filtering – Because sample delivery to DLZ will require transport to the lab, sometimes on the day following sample collection, it will not be possible to ensure the current practice of filtering within several hours of sample collection. Therefore, sample filtration must either be done in the field, or when received by the lab regardless of the time elapsed. Field filtration is clearly the preferred practice from a technical standpoint and the only way to ensure consistency between sampling events. For this reason, I recommend, and MDEQ concurs, that we should switch to in-line field filtration using QED 0.45 micron filter cartridges.

It should be pointed out that changing to field filtration could cause changes in analytical results for metals compared to historical data. Any delay in filtering allows reduced (ferrous) iron to become oxidized to ferric iron. Ferric iron readily forms oxides and hydroxide that can be subsequently be filtered out of the sample. In addition, these ferric oxides and hydroxides have a very high surface area and have a high potential to adsorb other metals. Therefore, field filtration, particularly in-line filtration, often results in higher iron and sometimes higher trace metal concentrations in the samples. As statistical comparisons are made with historical data, changing to field filtration could result in a higher rate of statistical false positive results for iron and other metals.

I discussed this with Ms. Loselle and she assured me that MDEQ is aware of this possibility and that they would take this into consideration in the event that this happens. We agreed that the use of metals data to assess a release must be considered in context with other data and that re-establishing background may be necessary if the statistical effects are severe.

Field/Trip Blanks – Currently, a field and trip blank is maintained for each groundwater sample. The SAP requires that one of each for every ten samples be analyzed, as well as those that correspond to any sample in which a volatile organic compound is detected. Encotec did not want to review sample data and then go back to analyze blanks so they analyzed all field and trip blanks at their expense. DLZ, of course, does not wish to do this. Therefore, DLZ will handle blanks as described in the SAP with the understanding that it will generally not be possible to go back and analyze blanks corresponding to hits within samples within USEPA recommended holding times. The practical result of this is that there will be a slight possibility that there will be a diminished capacity to detect contamination picked up during sampling and thus explain the sample result. I discussed this issue with Ms. Loselle and she understood the practical limitations and does not believe that this practice will cause a significant problem in the monitoring program.

I recommend that a copy of this letter be sent to MDEQ and also be placed in the monitoring record, along with any correspondence we may receive from MDEQ, so that any issues arising in the future can be referenced. I trust that this will meet your needs for now.

If you have any questions, please contact me at (734) 261-3175.

Sincerely,

Michael J. Takacs

Michael J. Takacs
GeoChem, Inc.

Groundwater Sampling and Analysis Plan
Michigan Disposal Waste Treatment Plant

MID 000 724 831

August 1987

Revision 2.2, 11/95

Revision 2.3, 5/99

I. Introduction

40 CFR, Part 264.97 requires the owner or operator of a hazardous waste facility to develop and follow a consistent program of groundwater sampling and analysis procedures. The program must include procedures and techniques for:

1) sample collection;

2) sample preservation and shipment;

3) analytical procedures; and

4) chain of custody control.

This document has been developed to direct the efforts of our groundwater monitoring personnel and thereby meet the requirement of the rule referenced above.

The groundwater monitoring system for the Michigan Disposal Waste Treatment Plant facility consists of 6 wells, numbered OB-18, OB-19R, OB-21, OB-23R, OB-36, and OB-47. All wells except for OB-47, which is unique to Michigan Disposal Waste Treatment Plant, are also monitored under the Wayne Disposal Site #2 Landfill Monitoring Program. Wells numbered 1A through 17, 20, 22, 24-26, 26A, 27, 27A, 28-31AR, 32, and 34R-46 also exist at the site but do not form a part of the groundwater monitoring system for Michigan Disposal Waste Treatment Plant. Well locations are shown on Attachment A. Copies of the well logs for all of Michigan Disposal Waste Treatment Plant's wells are included in Attachment B. Analyses of samples from the Michigan Disposal Waste Treatment Plant wells are conducted by DLZ Laboratories, Inc. of Lansing, Michigan. Analytical arrangements and sample bottle preparation can be ordered in advance by calling DLZ. Request all analyses when calling for bottles so the laboratory personnel can properly prepare the containers.

If Michigan Disposal Waste Treatment Plant decides to contract analysis of groundwater samples to another laboratory, the change will be made only after at least two concurrent sampling/analysis events show adequate correlation of analysis results of the existing and proposed contract laboratories.

For record keeping, three items are required. First, a small notebook is maintained on-site into which all pertinent monitoring well data is entered. These items include, but are not limited to, name of sampler, date, time, sampling point, depth to standing water in the well, calculations for determining the volume of water to be purged from the well prior to sampling, results of any field or lab tests conducted after sampling and any other observations of the sample character or sampling environment. Second, an equipment inventory, repair and calibration log is maintained in the Engineering field office. This log is used to list the inventory (by serial number) of all dedicated pumping apparatus and field measurement devices. Any changes of equipment or repairs to equipment must be noted in this log, as well as daily instrument calibrations, etc. Also required for record keeping are blank copies of the chain of custody record from DLZ. A sample copy of this sheet is included herein as Attachment C-1. This sheet must be filled out fully for each sample submitted for analysis.

II. STATIC WATER LEVELS

The sampling schedule is generally arranged such that the Michigan Disposal Waste Treatment Plant wells are sampled the month immediately following that in which Wells 1A through 17 are sampled. To obtain the best picture of static water levels for the site, 1) the levels must be obtained for all 49 wells before any water is removed for purging or sampling, and 2) the levels must be obtained for all 49 wells in as short a time as possible on the same day, due to barometric pressure effects. This means that static water levels for the Michigan Disposal Waste Treatment Plant wells are generally determined at least 30 days in advance of their sampling. This is the only case where purging and sampling does not immediately follow the water level observations.

The depth to standing water within the well casing is measured from the top of casing (TOC). The top of the well casing is exposed by removing the white plastic Well Wizard™ well heads. The surveyed point on the casing is always at the edge on the north side of the casing. Additionally, there is a permanent mark on the north side of the casing, which marks the edge from which water levels are to be taken. The TOC elevations shall be surveyed at least once every two years to verify accuracy. Removal of the well head is necessary for determination of the standing water level. The depth to water is measured using an electric water level indicator. Attachment D describes the operating procedures for the water level indicator, which is used for this purpose.

When using the water level indicator, make certain that the probe and submersed portion of the cable are cleaned with distilled water and a clean rag, followed by a distilled water rinse. This prevents cross contamination between wells. Lower the probe into the casing slowly while watching for the light. Carefully determine the water level by raising and lowering the probe at the water surface, and monitoring the light and buzzer. Record the distance from the point on the cable at TOC to the nearest marking in the cable <u>within</u> the well casing. The markings on the cable are scaled in 0.01 foot intervals. Record the measurement to the nearest 0.01 foot. The depth to standing water is then the distance from the probe tip at the water level to the marking on the cable. Record this depth in the field notebook.

III. <u>WELL PURGING</u>

Before purging a well, it is necessary to determine the quantity of water contained within the well casing. This is done by subtracting the depth to standing water from the depth to the well screen. The depth to the well screen for each existing well is listed on Attachment E. The difference between screen depth and water level depth is the height of water standing within the well. Multiply this height of water by 0.17 gallons per foot (for 2 inch diameter well casing). Multiply that product by 3, the number of standing volumes to be purged, which is the minimum recommended by Michigan DEQ. The resultant product is the total quantity to be purged from the well, in gallons. Once again,

Amt. purged (in gallons) = (Ht. of standing water) x 0.17 x 3

Record these calculations in the field notebook.

The depth to the well screen should be confirmed every four years by removing the dedicated pump assemblies and lowering the water level indicator probe to the very bottom of the well casing for a determination of the clear depth of the well (make sure that the indicator cable is cleaned between each well). In addition, well depths should be checked if a change in well yield or sample appearance (i.e. turbidity) is noted. It is very important to ensure that the pump and tubing are kept clean when removed from the well (i.e. do not place equipment on the ground, rather, wrap in plastic sheeting).

Once 3 standing well volumes have been removed, measure and record the pH and specific conductance of the water coming from the well. Continue to record these values at a rate of once every 10 minutes. After three values of pH and specific conductance have been obtained in this manner, compare the highest and lowest values. If the difference between the highest and lowest pH value is 0.07 su or less, then the well is considered stabilized with respect to pH. If the difference between the highest and lowest specific conductance values is 18 μmhos/cm or less, then well stabilization with respect to this parameter is considered complete. If the difference between the highest and lowest values for either parameter exceeds these criteria, pump the well another 10 minutes and recheck both parameters. Perform the comparison again, using only the last three monitored values of pH and specific conductance. Once the criteria are satisfied for any 3 consecutive monitored values of both pH and specific conductance, then consider the well fully stabilized and proceed with sampling. Measure and record well water temperature at this time as well. Record in the field notebook all the data obtained to establish well stabilization. In the cases where an individual well cannot be purged to stabilization in a manner described above because the well becomes fully dewatered, then sample the well after completely dewatering (evacuating) the well 4 times. For each sampling event, the second, third and fourth well evacuations should be performed within 3 days of the previous well evacuation. Sampling should be accomplished as soon after the fourth well evacuation as possible, depending upon the rate at which the water level in the well recovers. Measure and record pH, specific conductance and temperature in the field at the time the sample is obtained from such a well. Fully record in the field notebook all instances of well evacuation.

At Michigan Disposal Waste Treatment Plant, we employ the "Well Wizard"TM system of dedicated pumps. This means that each well has a submersible pump within it, generally located at the well screen. The control unit and cylinders of compressed nitrogen are the other components that complete this system. Because sampling immediately follows the purging step in nearly all cases, the sampling box is always included during well purging. The sample box is discussed in greater detail in the Sample Collection portion of this document.

Prior to a sampling round for the Michigan Disposal Waste Treatment Plant wells, replace the sampling box discharge tube. To set up the Well WizardTM system for operation, connect the nitrogen cylinder hose to the supply port on the controller unit. Connect one end of the coiled tubing within the controller unit to the Drive Air Out port on the unit, and the other end to the smaller of the two ports on the well head assembly. Connect the water sample line from the larger of the two well head ports to the back of the sampling box. Make certain that the valve on the rear of the box directs flow out of the box and through the discharge tube, until well purging is completed.

To initiate purging, begin the flow of nitrogen from the cylinder. Measure the quantity of water purged from the well using a bucket of known volume kept with this equipment. Note that all purged water should be discharged on the ground away from the well. Do not allow the purged water to re-enter the well or the well protective casing nor should you allow ponding of the water around the well. Further background on Well Wizard™ operation can be gained by referring to Attachment F. Report any problems with equipment function to the Regulatory Affairs Manager.

IV. SAMPLE COLLECTION

Upon completion of the well purging step, or return to a well, which has been evacuated four times for purging, you are ready to take samples. Make sure each sample bottle for a given monitoring well has a label (affixed by the analytical laboratory personnel) which contains our facility name, the monitoring well number, the date and the sampler's initials. If a preservative has been included by the laboratory, such a note should appear on the label.

In the past sampling programs, it has been shown that airborne artifacts from disposal operations and engine exhaust can affect the number of detected constituents and their concentrations within groundwater samples. For this reason, a controlled-atmosphere sampling box was fabricated. Nitrogen is used as the sampling atmosphere, thereby minimizing the probability of impacts to sample quality by airborne artifacts. All samples taken from Michigan Disposal Waste Treatment Plant wells shall be taken within the sampling box.

In preparation for sampling, connect the nitrogen cylinder to the sampling box and purge the box atmosphere with nitrogen for 20 to 30 minutes. Make certain that all sample bottles to be used at a given location are placed within the box with caps off prior to purging the box atmosphere. Further, a new laboratory grade tygon tube connecting the wellhead to the sampling box must be used for the collection of samples from each location. When all is ready, turn the valve on the rear of the sampling box, diverting the flow of water from the discharge tube to the sampling tube within the box.

Samples for volatile organic compounds will be filled first. No headspace is permitted in the small glass vials. This may require several attempts but it can and must be done. Make certain not to touch the inside of bottle necks or caps with your hands. Next, fill the bottles for total organic carbon, total phenolics, metals and then other miscellaneous parameters, in this order. Fill each sample bottle to the very top and allow minimal headspace (air bubbles when capped and tipped) and take care not to spill any of the preservatives. Record the number and type of samples taken and the time of sampling on the chain of custody record and in the field notebook.

Trip blanks shall be used every day and shall remain unopened throughout the sampling day. Field blanks shall also be submitted as well. These are all available from the laboratory and consist of VOC vials. There will be one field blank per well. It will be opened in the nitrogen sampling box and will remain open while that well is being sampled. Both kinds of blanks should be handled and shipped exactly as the well samples are. The blanks shall be preserved in the laboratory exactly as samples for Table 3a. Only a limited number of the blanks will be analyzed on a random basis for Table 3a parameters. However, if a positive result for any Table 3a parameter is noted in a given well, the matching trip and field blanks will immediately be analyzed for the offending parameter(s). A complete replicate sample shall be obtained from one well, chosen randomly, during each sampling round and will be analyzed for the same parameters as the sample it replicates.

V. SAMPLE PRESERVATION AND SHIPMENT

Attachment G is a tabulation of sample preservation procedures for DLZ. The samples must be preserved in accordance with the procedures outlined in this attachment. For all samples except dissolved metals, the laboratory provides clean, pre-preserved bottles (where necessary). Samples to be analyzed for dissolved metals ~~can either be~~ are field filtered with a 0.45 µm in-line filter cartridge and preserved with a couple of drops of reagent grade HNO_3 to a pH of less than 2.

When the sample collection step is completed, open the sampling box, transfer all sample bottles to a cooler and pack the cooler with ice. Samples in the cooler are to be stored in the engineering field office or other secure location until the end of the days sampling. The samples must be stored in a secure location at all times and in accordance with chain of custody procedures.

At this point, you are ready to prepare for the next set of samples by replacing the tubing for the sampling box, purging the sampling box with nitrogen and by completing sample bottle labels and chain of custody records.

At the close of the sampling day, all collected samples and blanks will be sealed and stored in sealed coolers in a secure location until being transported to the contract laboratory. Be sure to take along all chain of custody records. The handling of these forms is covered in the Chain of Custody Control portion of this document.

modified by MDEQ 6/27/99

VI. ANALYTICAL PROCEDURES

The parameters to be tested for as part of this monitoring program are shown in Attachment H.

Specific analytical procedures, target detection limits, QA/QC frequencies, and precision and accuracy requirements to be used by DLZ for this monitoring program are tabulated in Attachment I. As some of these items change with time, the contents of Attachment I are to be reviewed periodically to determine if the laboratory has made improvements in their standard operating procedures. If the review reveals that changes have been made in analytical methods or QA/QC protocol, then Attachment I should be updated and transmitted to MDEQ. Improvements made by the laboratory to methods or QA/QC in response to regulatory requirements can be utilized in this monitoring program without prior approval, but must be included in updated sampling and analysis plans.

Field measurements of specific conductance, pH and temperature will be performed using the equipment and procedures described in Attachment J. The instruments must be calibrated prior to each day of use and the appropriate notation made in the Equipment Inventory, Repair and Calibration Log described in Section I.

DLZ's Quality Assurance Manual is included as Attachment K. This manual describes the internal policies, guidelines and procedures of DLZ. This manual is not intended to describe the specific details of this particular monitoring program. Rather, we are to use this document as a guideline in evaluating DLZ's QA/QC and standard operating procedures to ensure that generally acceptable practices are employed.

VII. CHAIN OF CUSTODY CONTROL

Chain of Custody refers to the record of individuals and external conditions of sample handling through the time of laboratory analysis. The chain of custody record included as Attachment C is the principal document of this record. These sheets must be fully filled in with sampling information as well as the persons involved and shipment conditions during transport to the analytical laboratory. These sheets must accompany the samples to the laboratory.

When the samples are surrendered at the laboratory, each chain of custody record must be signed by the person transporting the samples as well as a representative of the receiving laboratory. The lab will make a copy of each sheet for us and keep the originals. Two copies must be made upon return to the site: one for the operating log notebook and one for the Groundwater Monitoring files. Upon completion of a full round of sampling, transmit depth to standing water information, field monitoring data and all chain of custody records to the Regulatory Affairs Manager or his/her designee.

VIII. EQUIPMENT AND WELL MAINTENANCE

Equipment used for the collection and analysis of groundwater samples must be maintained in working order and replaced or repaired promptly when necessary. Electrodes for pH and specific conductance should be replaced annually, or sooner if they become difficult to calibrate or appear to malfunction. The dedicated Well Wizard™ pumps and associated equipment require no routine maintenance but should be promptly replaced or repaired in the event of a malfunction. Any pump removed from a well should be thoroughly cleaned before replacement. Tubing removed from the well should be packaged and stored to prevent contamination or replaced. As outlined in Section I, records of instrument calibration and any equipment replacement or repair must be kept in the Equipment Log maintained at the Engineering field office.

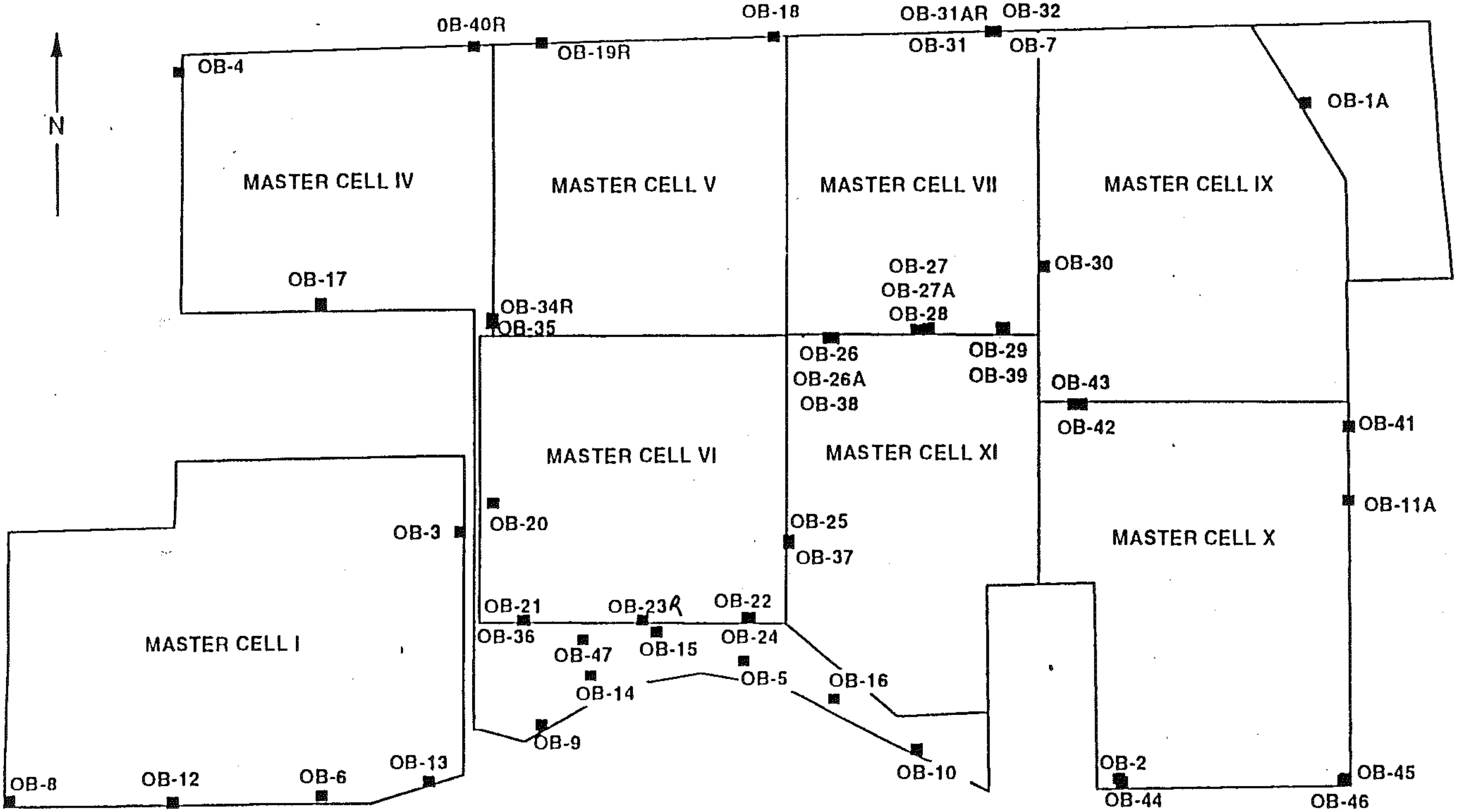
The well casings, protective covers, and Well Wizard™ pump heads should be inspected for damage at the time of each well sampling. Any damage should be noted in the field notebook and a Monitoring Well Inspection/Damage Report must be filled out and sent to the Regulatory Affairs Manager or his/her designee. A copy of this form is included as Attachment C-2. Also note any surface erosion, standing water at the well or evidence of a damaged grout seal around the well.

In the event any damage requiring well repair becomes necessary, a Damage Incident Report will be prepared by the Regulatory Affairs Department. A copy of this report will be placed in the site Operating Log and the Regulatory Affairs Department Groundwater Monitoring Operating Log. A proposed method of well repair will be prepared and submitted to the MDEQ Waste Management Division for approval. Repair efforts will be undertaken after approval by the MDEQ is received. The MDEQ Waste Management Division shall then be notified at least 24 hours prior to initiating the repair efforts. Following completion of the well repairs, as-built documentation of the repair efforts will be prepared. A copy of this will be placed in the site Operating Log and the Regulatory Affairs Department Groundwater Monitoring Operating Log. A copy will also be sent to the MDEQ Waste Management Division.

IX. STATISTICAL EVALUATION AND REPORTING REQUIREMENTS

All ground water analyses must be analyzed for evidence of statistically significant increases in concentrations of all primary and secondary monitoring parameters as described in Attachment L. The analytical reports and a summary of the statistical analyses must be submitted to the Waste Management Division of the MDEQ in Lansing within 60 days of the completion of the sampling event. A copy of the statistical summary must also be sent to the MDEQ Waste Management Division's Southeast Michigan Regional office in Livonia. Copies of the analysis and report must be maintained in designated files at the administration office at the site and at the main office. In addition, an annual report summarizing the results of groundwater monitoring results and which evaluates groundwater flow directions and rates must be submitted to MDEQ by March 1 of the following year.

ATTACHMENT A



MONITORING WELL LOCATION PLAN
WAYNE DISPOSAL SITE #2

ATTACHMENT A

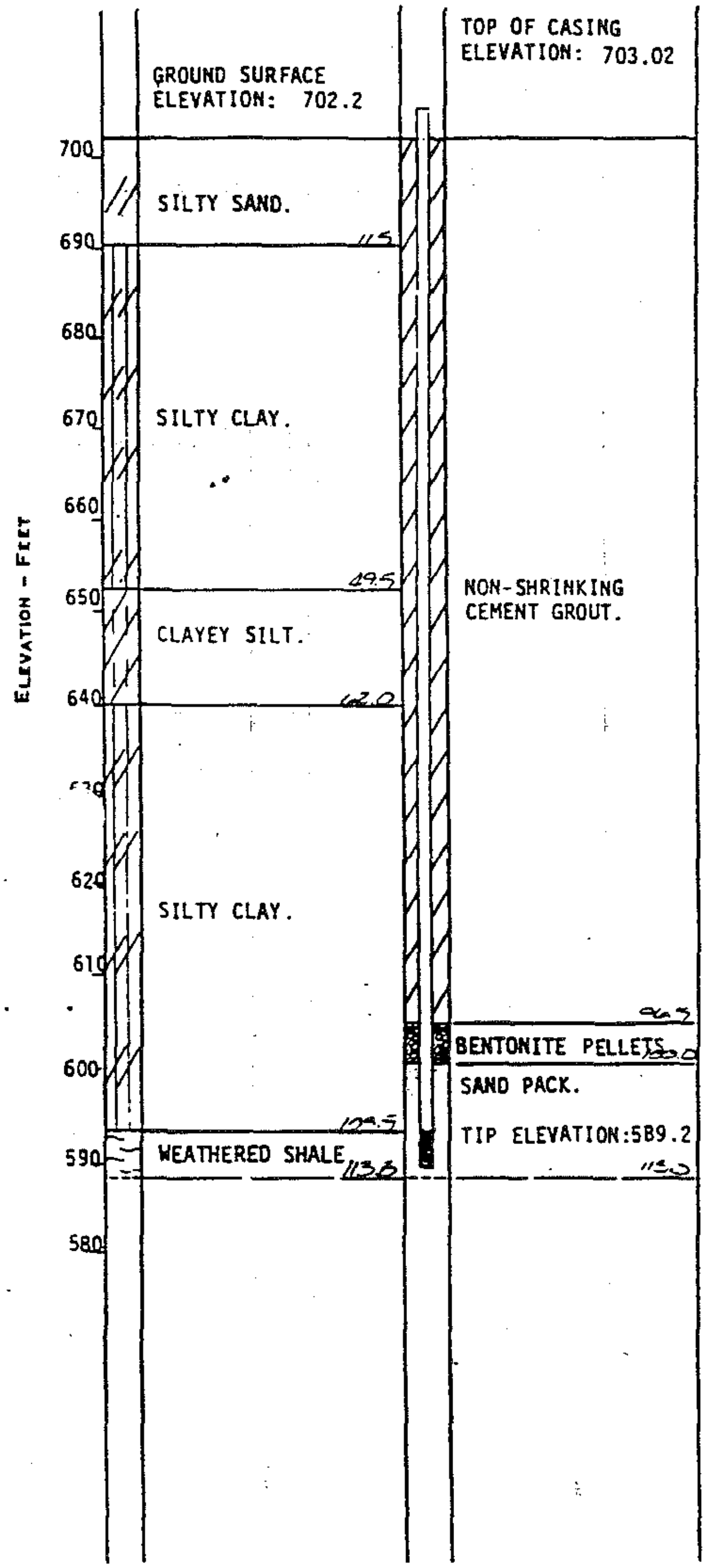
REVISED 2/95

ATTACHMENT B

LOG OF GROUNDWATER MONITORING WELL

CLASSIFICATIONS BY:
NEYER, TISEO & HINDO, LTD.

GENERALIZED SUBSURFACE PROFILE	WELL SCHEMATIC



GROUNDWATER DATA

DATE	GROUND-WATER ELEV. (FEET)	COMMENTS
9-24-84	654.69	
10-22-84	653.22	

CASING - DIAMETER: 2.0"
- LENGTH: 108.0'
- MATERIAL: PVC

SCREEN - DIAMETER: 2.0"
- LENGTH: 5.0"
- MESH: .006" slot
- MATERIAL: PVC

WELL STARTED: 9-11-84
WELL COMPLETED: 9-11-84
INSPECTOR: J. Serwik
DRILLER: J. Blank
CONTRACTOR: American Drilling
EQUIPMENT: CME-75

NOTES:
1. For details of the subsurface strata see Log of Test Boring No. OB-1B.
2. Top of casing elevations and ground surface elevations provided by Wayne Disposal, Inc.

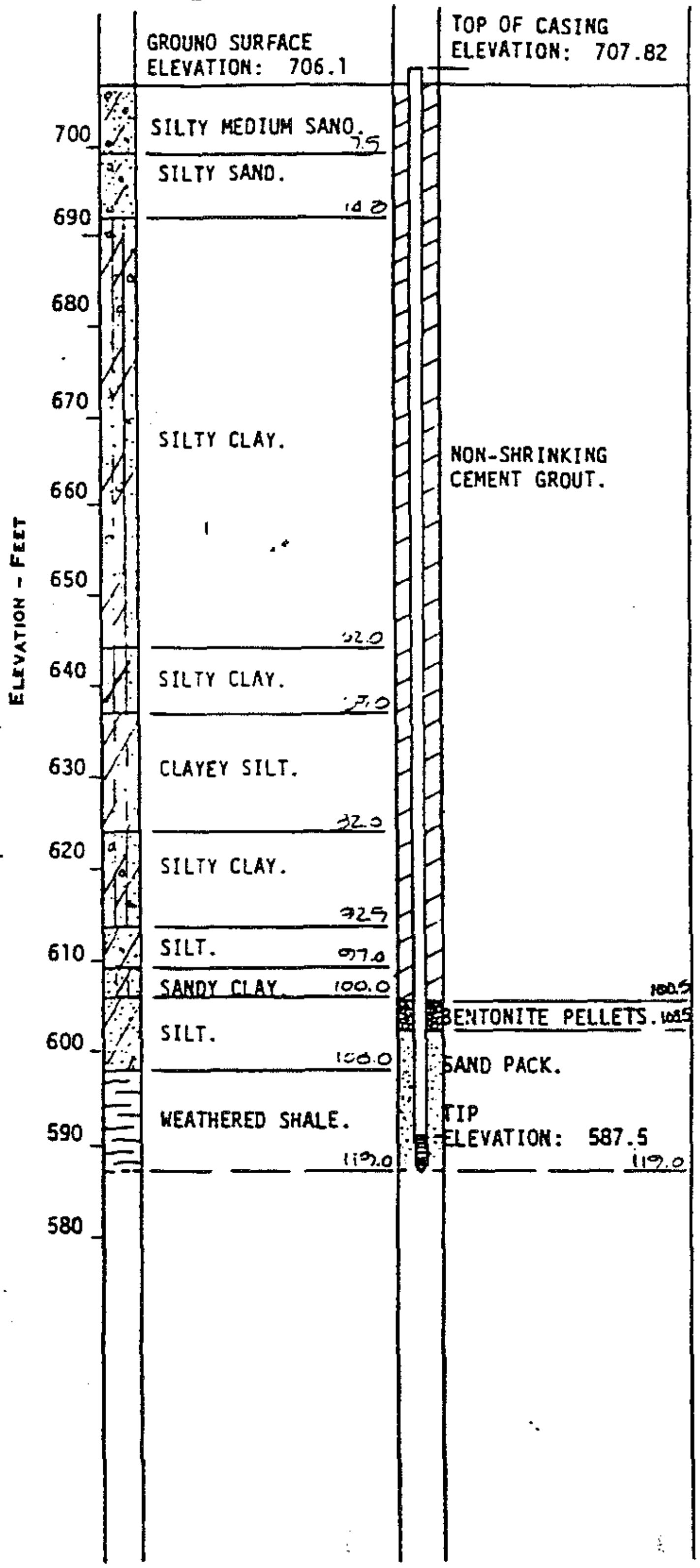
NEYER, TISEO & HINDO, LTD.
CONSULTING ENGINEERS

GROUNDWATER MONITORING WELL No. OB-1B

WAYNE DISPOSAL LANDFILL SITE NO. 2
VAN BUREN TOWNSHIP

LOG OF GROUNDWATER MONITORING WELL

CLASSIFICATIONS BY:
NEYER, TISEO & HINDO, LTD.



GROUNDWATER DATA

DATE	GROUND-WATER ELEV. (FEET)	COMMENTS
9-12-84	654.10	
9-24-84	654.50	
10-22-84	654.39	

CASING – DIAMETER: 2.0"
– LENGTH: 115.0'
– MATERIAL: Galvanized

SCREEN – DIAMETER: 2.0"
– LENGTH: 3.0'
– MESH: .007" slot
– MATERIAL: Stainless Stee

WELL STARTED: 9-5-84
WELL COMPLETED: 9-5-84
INSPECTOR: J. Serwik
DRILLER: J. Blank
CONTRACTOR: American Drilling
EQUIPMENT: CME-75

NOTES:
1. For details of the subsurface stra see Log of Test Boring No. OB-19.
2. Top of casing elevations and groun surface elevations provided by Wayı Disposal, Inc.

NEYER, TISEO & HINDO, LTD.
CONSULTING ENGINEERS

GROUNDWATER MONITORING WELL No. OB-19

WAYNE DISPOSAL LANDFILL SITE NO. 2
VAN BUREN TOWNSHIP
WAYNE COUNTY, MICHIGAN

APPROVED BY: MBS DATE: 10 8 84

LOG OF GROUNDWATER MONITORING WELL

CLASSIFICATIONS BY:
NEYER, TISEO & HINDO, LTD.

GENERALIZED SUBSURFACE PROFILE | **WELL SCHEMATIC**

GROUND SURFACE ELEVATION: 699.9

TOP OF CASING ELEVATION: 704.80

ELEVATION - FEET

Elevation	Stratum	Depth
	SILTY SAND.	2.0
690	SILTY SAND.	12.0
680, 670	SILTY CLAY.	31.0
660	SILTY CLAY.	45.5
650	SANDY SILT.	50.0
640, 630	SILTY CLAY.	67.0
	CLAYEY SILT	73.5
620	SANDY CLAY.	82.0
610	SILTY CLAY.	94.5
	SILTY SAND.	98.5
600	GRAVELLY SAND.	100.0

NON-SHRINKING CEMENT GROUT.

BENTONITE PELLETS. 89.3 / 91.1

SAND PACK.

TIP ELEVATION: 600.9 100.0

GROUNDWATER DATA

DATE	GROUND-WATER ELEV. (FEET)	COMMENTS
9-12-84	652.64	
9-24-84	652.64	
10-22-84	652.44	

CASING - DIAMETER: 2.0"
- LENGTH: 94.0'
- MATERIAL: PVC

SCREEN - DIAMETER: 2.0"
- LENGTH: 5.0'
- MESH: .006" slot
- MATERIAL: PVC

WELL STARTED: 7-23-84
WELL COMPLETED: 7-24-84
INSPECTOR: J. Serwik
DRILLER: J. Blank
CONTRACTOR: American Drilling
EQUIPMENT: CME-75

NOTES:
1. For details of the subsurface strat see Log of Test Boring No. OB-21.
2. Top casing elevations and ground surface elevations provided by Wayn Disposal, Inc.

NEYER, TISEO & HINDO, LTD.
CONSULTING ENGINEERS

GROUNDWATER MONITORING WELL NO. OB-21

WAYNE DISPOSAL LANDFILL SITE NO. 2
VAN BUREN TOWNSHIP
WAYNE COUNTY, MICHIGAN

APPROVED BY: MRS DATE: 10-23-84

MONITORING WELL NO. OB-23R

NTH CONSULTANTS, LTD.

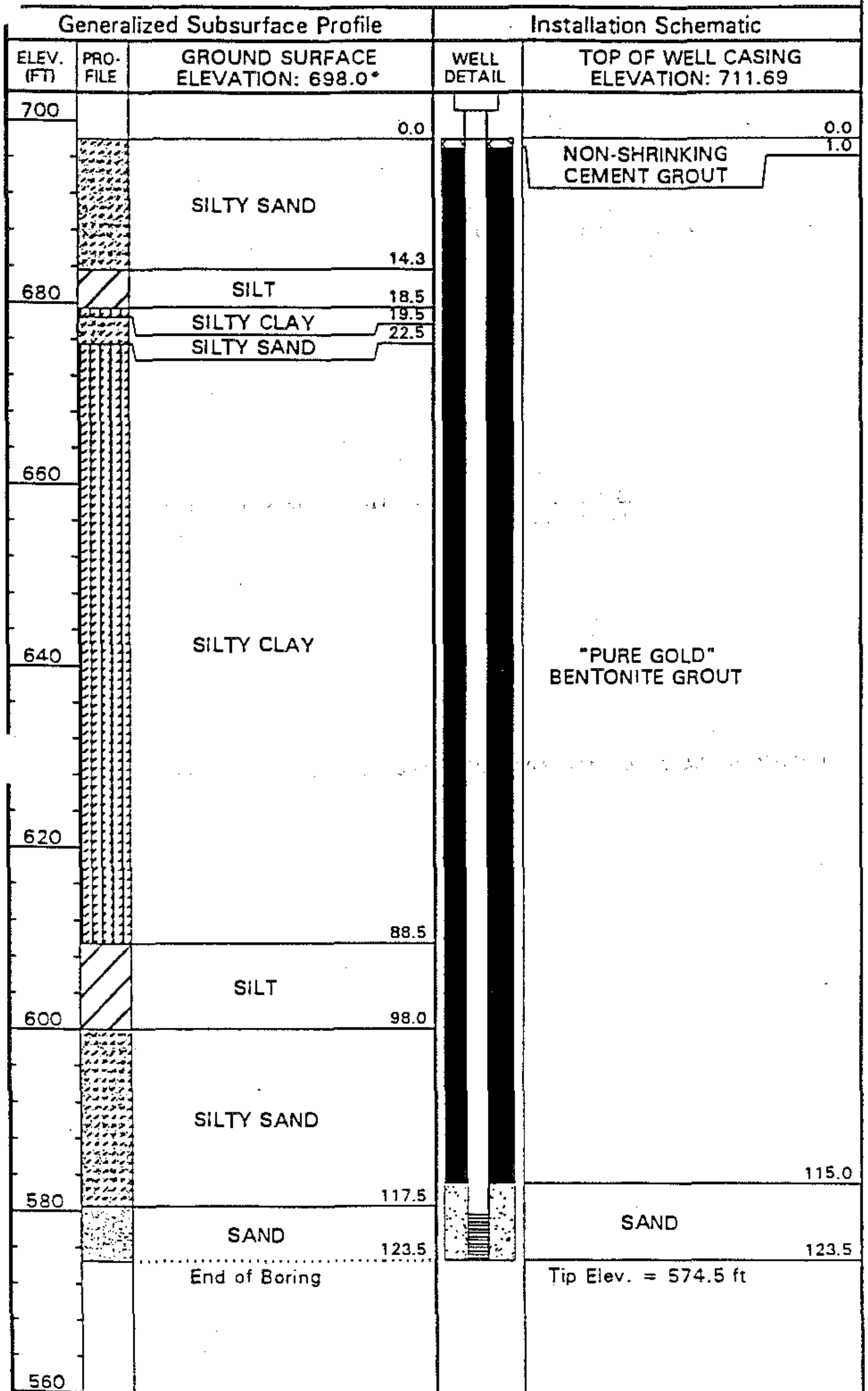
Project Name: *WAYNE DISPOSAL, INC. - SITE #2*

NTH Proj. No: *13-3051-02*

Project Location: *VAN BUREN TWP., WAYNE CO., MICHIGAN*

Checked By: ACE

LOG OF MONITORING WELL



GROUNDWATER DATA

DATE	ELEV. (ft.)	COMMENTS

NOTES

[1] For Details of subsurface strata, see Log of Test Boring No. OB-23R.

[2] Well developed on 10/30/96, removed 595 gallons.

[3] pH @ 7.59, specific conductance @ 676.

[4] Location @ 6208.2 N, 5790.6 E

[5] Location coordinates and top of casing elevation provided by EQ. *Ground surface elevation estimated by NTH at time of drilling. Location was subsequently filled (berm construction).

Started:	*10/28/96*	Casing Diameter:	*2.0"*
Completed:	*10/29/96*	Casing Length:	*130.0'*
Inspector:	*M. Dueweke*	Casing Type:	*Stainless Steel*
Contractor:	*Geo-Tek, Inc.*	Screen Diameter:	*2.0"*
Driller:	*G. Qualls*	Screen Length:	*5.0'*
Equipment:	*CME-850*	Screen Mesh:	*0.010"*
Well Type:	*Monitoring*	Screen Type:	*Stainless Steel*

FIGURE NO. 2

NEYER, TISEO & HINDO, LTD.

MONITOR WELL NO. 08-36

Project Name: WAYNE DISPOSAL LANDFILL – SITE NO. 2
Project Location: VAN BUREN TWP., WAYNE COUNTY, MICHIGAN

NTH Pro. No. 94315 OW
Chk. By: RLB

LOG OF MONITOR INSTALLATION

GROUND SURFACE ELEVATION: 700.1

TOP OF CASING ELEVATION: 702.13

Generalized Subsurface Profile	Depth (ft)
SILTY SAND	2.2
SILTY SAND	12.2
SILTY CLAY	37.2
SILTY CLAY	45.7
SANDY SILT	50.2
SILTY CLAY	69.2
CLAYEY SILT	73.7
SANDY CLAY	82.2
CLAYEY SILT	95.0
SAND AND GRAVEL	105.0
SAND	119.5
SHALE	128.5
END OF BORING	

Schematic	Depth (ft)
NON-SHRINKING CEMENT GROUT	75.0
BENTONITE SLURRY	120.5
SAND	128.0

TIP ELEVATION: 572.1

ELEV (FT): 700, 695, 690, 685, 680, 675, 670, 665, 660, 655, 650, 645, 640, 635, 630, 625, 620, 615, 610, 605, 600, 595, 590, 585, 580, 575, 570

GROUNDWATER DATA

Date	Ground-water Elev. (ft)	Comments
10/22/87	649.70	

NOTES :

[1] FOR DETAILS OF SUBSURFACE STRATA, SEE LOG OF TEST BORING NO. 08-36

[2] TOP OF CASING AND GROUND SURFACE ELEVATIONS PROVIDED BY WAYNE DISPOSAL, INC.

Started:	10/1/87	Casing Diam.:	2"
Completed:	10/1/87	Casing Length:	125'
Inspector:	M. TAKACS / R. BURNS	Casing Type:	70' GAVL. / 55' SS
Driller:	S. REMPALSKI	Screen Diam.:	2"
Contractor:	MATECO DRILLING COMPANY	Screen Length:	5'
Equipment:	CME-550	Screen Mesh:	0.007"
Observation Type:	MONITORING WELL	Screen Type:	STAINLESS STEEL

Figure No. 15

NTH Consultants, Ltd.

MONITORING WELL NO. OB-47

Project Name : MICHIGAN DISPOSAL, INCORPORATED — NTH Proj. No: 90323 OW

Project Location : VAN BUREN TWP, WAYNE COUNTY, MICHIGAN — Check By :

LOG OF MONITORING WELL

Generalized Subsurface Profile

GROUND SURFACE ELEVATION: 699.9

ELEV. (FT)	Description	Depth
695	FILL: SAND	4.2
690, 685	SAND	15.5
680, 675, 670, 665, 660	SILTY CLAY	40.5
655, 650, 645	SILTY CLAY	55.8
640, 635, 630, 625, 620	SILTY CLAY	78.8
	CLAYEY SILT	80.0

CONTINUED ON THE NEXT SHEET

Installation Schematic

TOP OF WELL CASING ELEVATION: 702.57

Material	Depth
CEMENT GROUT	73.0
BENTONITE SLURRY	80.0

CONTINUED ON THE NEXT SHEET

GROUNDWATER DATA

Date	Ground-water Elev.(ft)	Comments
07/12/90	652.96	
07/16/90	652.95	

NOTES :

[1] FOR DETAILS OF SUBSURFACE STRATIGRAPHY, SEE LOG OF TEST BORING OB-47.

[2] WELL DEVELOPED WITH COMPRESSED AIR ON 07/16/90.

[3] TOP OF CASING AND GROUND SURFACE ELEVATIONS DETERMINED BY WDI PERSONNEL.

[4] DEPTH TO FIRST COUPLING IS 0.3 FEET BELOW GROUND SURFACE; SECOND COUPLING IS 10.3 FEET BELOW GROUND SURFACE.

Started: 07/02/90
Completed: 07/12/90
Inspector: G. CROCKFORD
Driller: M. PUFFPAFF
Contractor: ENVIRONMENTAL DRILLING & SERVICES, INC.
Equipment: FAILING F-7
Well Type: MONITORING WELL

Casing Diameter: 2" I.D.
Casing Length: 103 FT
Casing Type: 60' STAINLESS/43' GALVANIZED
Screen Diameter: 2"
Screen Length: 5'
Screen Mesh: .007
Screen Type: STAINLESS STEEL

Figure No. 2

NTH Consultants, Ltd.

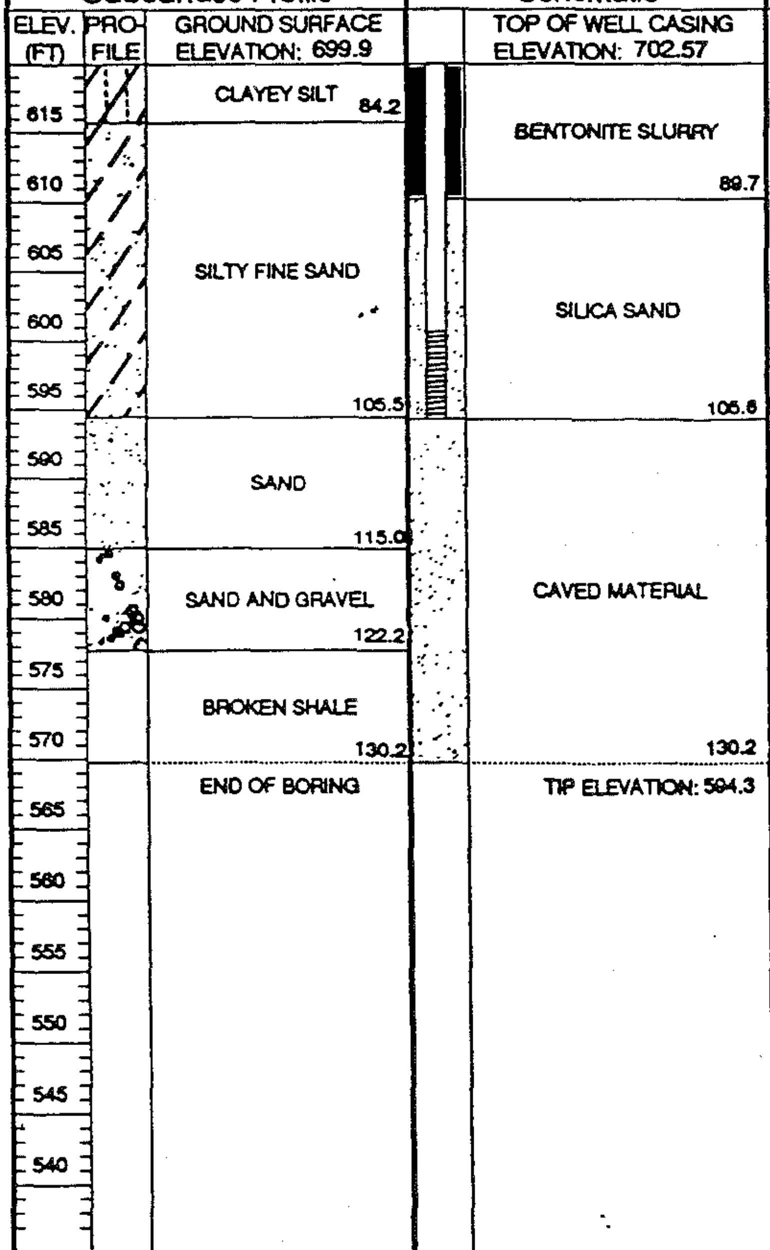
MONITORING WELL NO. OB-47

Project Name : MICHIGAN DISPOSAL, INCORPORATED — NTH Proj. No: 90323 OW

Project Location : VAN BUREN TWP, WAYNE COUNTY, MICHIGAN — Check By :

LOG OF MONITORING WELL

Generalized Subsurface Profile — Installation Schematic



GROUNDWATER DATA

Date	Ground-water Elev.(ft)	Comments
07/12/90	652.96	
07/16/90	652.95	

NOTES :

[1] FOR DETAILS OF SUBSURFACE STRATIGRAPHY, SEE LOG OF TEST BORING OB-47.

[2] WELL DEVELOPED WITH COMPRESSED AIR ON 07/16/90.

[3] TOP OF CASING AND GROUND SURFACE ELEVATIONS DETERMINED BY WDI PERSONNEL.

[4] DEPTH TO FIRST COUPLING IS 0.3 FEET BELOW GROUND SURFACE; SECOND COUPLING IS 10.3 FEET BELOW GROUND SURFACE.

Started:	07/02/90
Completed:	07/12/90
Inspector:	G. CROCKFORD
Driller:	M. PUFFPAFF
Contractor:	ENVIRONMENTAL DRILLING & SERVICES, INC.
Equipment:	FAILING F-7
Well Type:	MONITORING WELL

Casing Diameter:	2" I.D.
Casing Length:	103 FT
Casing Type:	60' STAINLESS/43' GALVANIZED
Screen Diameter:	2"
Screen Length:	5'
Screen Mesh:	.007
Screen Type:	STAINLESS STEEL

Figure No. 2

ATTACHMENT C

DL Laboratories, Inc.

ENVIRONMENTAL TESTING • COMPLIANCE ANALYSIS
INDUSTRIAL HYGIENE
1120 May Street • Lansing, Michigan 48906-5599
Telephone (517) 374-9656 • FAX (517) 374-6910

CUSTOD[Y] RECOR[D]

REPORT PAGE	RECORD NUMBER
OF	

REPORT RESULTS TO

NAME			SAMPLED BY
COMPANY			P.O. #
ADDRESS			PHONE NO.
CITY	STATE	ZIP	FAX NO.

PROJECT NAME

PROJECT # OR LOCATION

REPORTING LIMITS

INVOICE TO

NAME		
COMPANY		
ADDRESS		
CITY	STATE	ZIP

NUMBER/TYPE CONTAINER — ANALYSIS REQUESTED — LAB # (LAB USE ONLY)

ENTER AN "X" IN THE BOX BELOW TO INDICATE REQUEST

ITEM NO.	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX MEDIA	NONE	NITRIC	H2SO4	NaOH	HCl	FILTERED Y/N											LAB #
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

TRANSFER NO.	RELINQUISHED BY	DATE	TIME	ACCEPTED BY	DATE	TIME	CONDITION
1							
2							
3							
4							

ADDITIONAL COMMENTS (PLEASE RECORD SPECIAL HANDLING/HAZARD INFORMATION) PAID IN FULL ☐ YES ☐ NO

IMPORTANT - TURN AROUND TIME

DATE RESULTS EXPECTED

☐ 24 HR. ☐ 48 HR. ☐ 5 DAY ☐ STANDARD

MONITORING WELL INSPECTION/DAMAGE REPORT

DATE: ______________________________

NAME: ______________________________

SITE: ______________________________

WELL ID: ______________________________

INSPECTION CHECKLIST	CONDITION ACCEPTABLE? YES	NO
LOCK	________	________
ANNULAR SEAL	________	________
PROTECTIVE CASING	________	________
MARKINGS	________	________
DEDICATED PUMP	________	________
CASING	________	________

DETAILS OF PROBLEM(S) ENCOUNTERED: ______________________________

____

____

____

____

____

____

ACTIONS REQUIRED TO REMEDY THE PROBLEM(S): ______________________________

____

____

____

____

____

SUBMIT THIS FORM IMMEDIATELY TO THE SITE MANAGER AND THE REGULATORY AFFAIRS MANAGER OR THEIR DESIGNEE

ATTACHMENT D

KECK INSTRUMENTS, INC.

KECK TAPE GUARD

The Keck "Tape Guard" was developed to protect instrumentation, tapes and sample tubing from the wearing edges of well casing. Made of smooth flexible polystyrene, the "Tape Guard" easily adapts to any 2" or 4" well.

Instructions
Simply compress the "Tape Guard" and insert into the opening of any 2" to 4" well pipe. Allow instrumentation, tubing or tape to ride on the smooth surface of the "Tape Guard" to prevent wear.

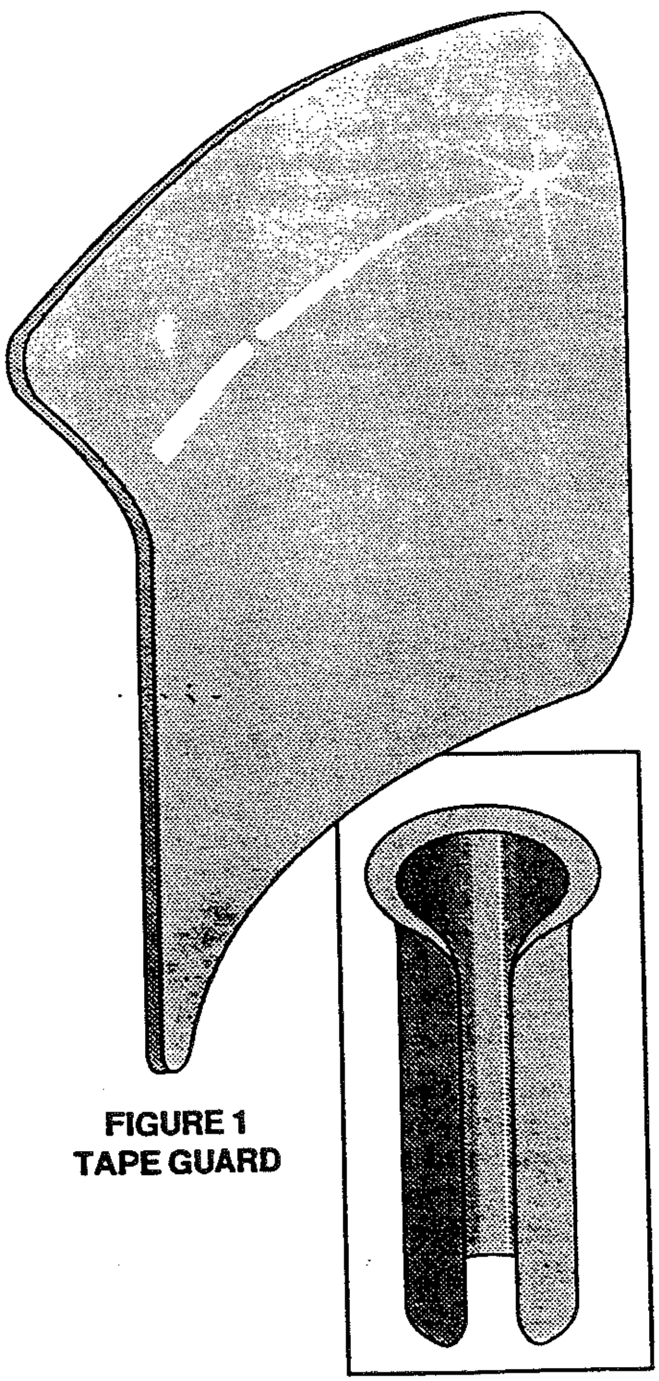


FIGURE 1
TAPE GUARD

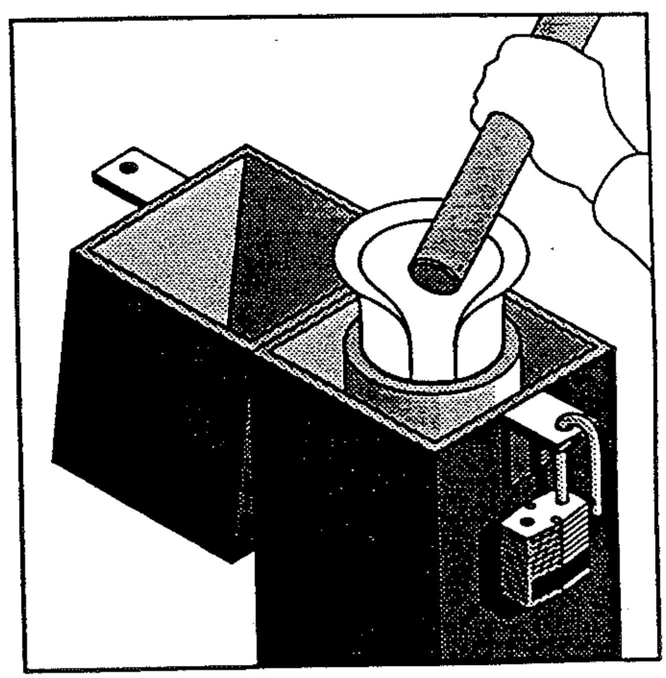


FIGURE 2
TAPE GUARD USAGE

ET-89

The Keck Instruments ET-89 is a portable reel mounted device used to accurately measure water levels in a borehole. Water levels are detected by a 5/8" O.D. stainless steel probe attached to a 100 FT. Tefzel coated engineer's tape. The tape is graduated in 100ths of a foot with metric divisions on the reverse side. The ET-89 relies on fluid conductivity to determine the presence of water and emits on audible signal with light. Controls include a sensitivity adjustment to eliminate false readings due to cascading water or casing effect and a battery test switch.

Operational Procedure

1. Turn the instrument "On" and check the battery voltage by pressing the "Batt Test" button. A dim red light indicates a low battery and should be replaced.
2. Lower the probe down the well to the water surface, the light and buzzer should be activated. At this point adjust the probe sensitivity counter-clockwise until the light and buzzer turn off.
3. With the probe still in contact with the water, adjust the probe sensitivity until the light and buzzer barely activate. In this setting the probe will detect water level and not be effected by condensation from the casing well.
4. Water level measurements can now be taken from the top of the casing.
5. After completion of water level measurements the device should be properly stored.

Maintenance and Cleaning Procedures

1. Remove the three faceplate screws.
2. Release the faceplate using the sensitivity knob to pull the components out of the reel.
3. Make note of the battery location on the circuit board and the position in reel cavity.
4. Remove the 9 volt battery from the connector by grasping the battery and the black connector. Replace with new battery.
5. Position the battery in the notch of the circuit board and align the battery with the recessed slot in the reel.
6. Place the faceplate in the reel and replace the three retaining screws. Do not over tighten these screws.

Decontamination and Cleaning

The ET-89 can be cleaned with any detergent or lab soap such as Liquinox that does not effect polypropylene. The reel should not be submerged at any time but can be wiped with a damp cloth.

Please call our technical staff if further assistance is required at 1-800-542-5681.

ATTACHMENT E

MONITORING WELL INFORMATION
WAYNE DISPOSAL SITE #2 LANDFILL

WELL ID	PROGRAM(S)	T.O.C. ELEV.	SCREEN ELEV.	WELL DEPTH	DESIG.	STRATUM SCREENED
OB-1A	Part 115	705.79	579.9	126	UG	SILT/ROCK
OB-2A	Part 115/MCIX	701.18	587.8	113	DG	SAND
OB-3	Part 115	709.01	577.9	131	DG	SAND
OB-4	Part 115	712.52	638.9	74	UG	SAND
OB-5	Part 115	705.15	603.8	101	DG	SAND
OB-6	Part 115	704.76	627.1	78	DG	SAND
OB-7	Part 115/MCIX	698.69	627.0	72	UG	SILT/SAND
OB-8	Part 115	707.54	629.0	79	DG	SAND
OB-9	Part 115	701.20	614.1	87	DG	SAND
OB-10	Part 115	707.82	621.0	87	DG	SAND
OB-11A	Part 115/MCIX	698.83	611.4	87	DG	SAND
OB-12	Part 115	704.94	620.6	84	DG	SAND
OB-13	Part 115	703.22	619.9	83	DG	SAND
OB-14	Part 115	702.10	600.1	102	DG	SAND
OB-15	Part 115	707.65	617.3	90	DG	SAND
OB-16	Part 115	700.80	596.5	104	DG	SAND
OB-17	Part 115	708.27	626.2	82	DG	SAND
OB-18	Part 111 (MDWTP)	703.00	589.2	114	UG	CLAY/ROCK
OB-19R	Part 111 (MDWTP)	709.17	585.6	124	UG	ROCK
OB-20	Part 111	706.27	609.9	96	DG	SAND
OB-21	Part 111(MDWTP)/TSCA	705.00	600.9	104	DG	SAND
OB-22	Part 111	704.03	568.3	136	DG	SAND/ROCK
OB-23R	Part 111(MDWTP)/TSCA	711.91	577.5	134	DG	SAND
OB-24	Part 111/TSCA	704.57	614.4	90	DG	SAND
OB-25	Part 111	705.82	620.0	86	DG	SAND
OB-26	Part 111	713.40	630.1	83	DG	SAND
OB-26A	Part 111	714.01	628.5	86	DG	SAND
OB-27	Part 111	708.71	637.4	71	DG	SAND
OB-27A	Part 111	708.15	636.5	72	DG	SAND
OB-28	Part 111	708.90	583.9	125	DG	SAND
OB-29	Part 111	705.44	609.4	96	DG	SAND
OB-30	Part 111	703.78	607.4	96	DG	SAND
OB-31	Part 111	699.49	627.7	72	UG	SAND
OB-31AR	Part 111/MCIX	700.60	628.1	73	UG	SAND
OB-32	Part 111/MCIX	701.43	565.3	136	UG	ROCK
OB-34R	Part 111/TSCA	707.64	617.1	91	DG	SAND
OB-35	Part 111	707.12	576.1	131	DG	ROCK
OB-36	Part 111 (MDWTP)	702.16	572.1	130	DG	ROCK
OB-37	Part 111	705.48	572.7	133	DG	ROCK
OB-38	Part 111	714.00	573.4	141	DG	ROCK
OB-39	Part 111	707.42	561.9	146	DG	ROCK
OB-40R	Part 111/TSCA	708.75	610.2	99	UG	SILT/SAND
OB-41	MCIX	701.82	562.0	140	DG	ROCK
OB-42	MCIX	717.12	624.4	93	DG	SAND
OB-43	MCIX	717.35	595.1	122	DG	SAND
OB-44	MCIX	701.12	639.5	62	DG	SAND
OB-45	MCIX	701.15	628.0	73	DG	SAND
OB-46	MCIX	701.05	600.0	101	DG	SAND
OB-47	Part 111 (MDWTP)	702.61	594.3	108	DG	SAND

UG = Upgradient Well

DG = Downgradient Well

ATTACHMENT F